METHOD

OF

Chymical Nomenclature.

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METHOD
OF
CHYMICAL NOMENCLATURE,

PROPOSED BY
Meſſrs. De MORVEAU, LAVOISIER,
BERTHOLET, and De FOURCROY.

TO WHICH IS ADDED,
A NEW SYSTEM
OF
CHYMICAL CHARACTERS,
ADAPTED TO THE
NOMENCLATURE,
By Meſſ. HASSENFRATZ and ADET.

TRANSLATED FROM THE FRENCH, AND THE NEW
CHYMICAL NAMES ADAPTED TO THE GENIUS
OF THE ENGLISH LANGUAGE,

By JAMES ST. JOHN, M. D.

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PREFACE.

CHYMISTS have for a long time complained of the perplexity and embarraſſment, occaſioned in the ſcience, by the variety of names given to the ſame ſubſtances; many of which names were very improper and abſurd. It has been univerſally allowed, that a reform of the chymical denominations was abſolutely neceſſary; for which purpoſe it was requiſite, that ſome perſons of great chymical knowledge and abilities would undertake the taſk. The gentlemen who have produced the new nomenclature, are ranked among the firſt chymiſts in Europe. They have beſtowed much time and labor upon it: and, in my humble opinion, they have happily ſucceeded. It appears to me, that the new language is not the reſult of a theory, but is founded upon a baſis of plain and ſimple facts. And I think, that we cannot with juſtice cenſure it, unleſs we are able to prove the fallacy of the principles on which it is founded. If, for example, we can prove, that ſulphur during its combuſtion does not abſorb the baſis of vital air; and that ſulphur and ſeveral other combuſtible ſubſtances, do not become acidified by ſuch abſorption: If we can prove, that water is not generated by the combuſtion of inflammable or hydrogen gas and vital air: If we can demonſtrate, that the gaſes do not owe their ſtate of expanſion to the caloric or matter of heat which they contain; and that during the calcination of metals, and the combuſtion of inflammable ſubſtances, the caloric under the appearance of heat, or light, or of both together, does not proceed immediately from the vital air, the baſis of which becomes fixed on loſing the matter of heat which alone could keep it in the ſtate of aeriform ſuſpenſion: In ſhort, if we can confute the concluſions, deduced from the admirable diſcoveries on the nature, properties, and affinities of ſeveral elaſtic fluids, by the moſt celebrated modern philoſophers;

loſophers; men who are an honor to human nature, and who with moſt propriety and truth can be ſaid, to have laid the firſt foundation of the new doctrine; I mean the Honorable Mr. Cavendiſh, Dr. Prieſtley, Dr. Black, &c. If we can demonſtrate the erroneouſneſs of their experiments, and the conſequent abſurdity of their concluſions, we have every reaſon to reject a nomenclature, which ſeems to include the abovementioned principles. But if, on the contrary, we perceive thoſe principles to be unqueſtionable facts; and that every experiment we make, furniſhes us with new and inconteſtable proofs of their certainty; I do not think it either prudent or rational, to cenſure a work, founded upon ſuch palpable facts, and which is ſo evidently calculated, to render the ſcience more eaſily attainable to beginners.

The numerous lately diſcovered ſalts, the acetats, benzoats, bombiats, camphorats, citrats, formiats, lactats, lithiats, &c. &c. were without any denominations whatſoever in the old language of chymiſtry; ſo that, at any rate, all theſe new names, which conſtitute a principal part of the chymical nomenclature, become eſtabliſhed by the right of priority; which makes it appear probable, that an oppoſition to the new nomenclature would not be attended with any ſucceſs.

In the French nomenclature the authors found it neceſſary to change the genders of certain words; an alteration which the admirable ſimplicity of the Engliſh language renders totally unneceſſary: and therefore the nomenclature in this reſpect is more agreeable to our language than to the French.

It has of late been cuſtomary in France to change the *ph* into *f* in ſeveral words of Greek derivation; and therefore they write ſulfur, ſulfite, &c. but I have thought proper to write the words ſulphur, &c. agreeable to the cuſtom of Engliſh authors. It is alſo common in France to change the letter *y* into *i*, in words derived from the Greek; and therefore they write oxigen and hidrogen, and not oxygen and hydrogen: but as in Engliſh we generally retain the figure of the Greek upſilon (Y), though very ſeldom the ſound, I have every where written the words oxygen and hydrogen, agreeable to their derivations,

rivations, and conformable to the cuſtom of England.

The French word for ſulphur is *ſoufre*, and the new French name for the combinations of ſulphur in its ſimple ſtate with metals, &c. is *ſulfure*. Thus in the French language there is a remarkable difference between the words ſoufre and ſulfure: but in Engliſh, eſpecially as ſpondees are very uncommon in our language, we perhaps ſhould not always make the proper diſtinction in pronunciation between the words ſūlphŭr and ſūlphūre; as we might thereby miſtake a combination of ſulphur and arſenic for ſimple ſulphur, and as the Latin word is ſulphuretum; and eſpecially, as perſpicuity in expreſſion ſhould be holden above all other conſiderations in a language, I did not heſitate to render the French word ſulfure into Engliſh by the word ſulphuret, which is merely an abbreviation of the Latin word ſulphuretum. This alteration I thought the genius of our language rendered indiſpenſable; yet I ſhould not have attempted it, had I not firſt ſubmitted it to the inſpection of Mr. de Fourcroy; to whom for his politeneſs and friendſhip I think myſelf bound, in this public manner, to expreſs my obligations.

I ſhall not preſume to advance any more arguments in favor of the new chymical nomenclature, after all that has been ſaid by Meſſrs. Lavoiſier, de Morveau, and de Fourcroy. Neither ſhall I urge any thing in oppoſition to the celebrated theory of Stahl. Far from it; for I even think ſome part of Stahl's theory reconcileable with the modern diſcoveries. For though the late experiments demonſtrate that phlogiſton does not give weight or heavineſs to metals, that phlogiſton does not diſengage itſelf from the ſulphur during the formation of the ſulphuric acid; yet we ſtill allow the abſolute exiſtence of a phlogiſton. It is ſtill the matter of fire, of flame, of light, and of heat, which is liberated in combuſtion; the only difference is, that we do not agree with Stahl, that this principle diſengages from the body in combuſtion; but by a variety of concurring experiments are induced to believe, are convinced, that it is liberated from the the vital air on the precipitation of the oxygen,

gen. Yet it is ſtill phlogiſton with its moſt diſtinguiſhing attributes. In ſhort, it is ſtill the matter of heat; whether we call it phlogiſton, caloric, or in plain Engliſh, *fire*. But whether light, and heat, or that which gives the ſenſation of heat, be eſſentially different bodies, or only modifications of the ſame, is not at all determined.

As it is my duty to contribute every thing in my power to the general benefit of mankind, I take this opportunity to ſubmit the following remarks to ſuch as may find themſelves capable of purſuing them and throwing more light upon the ſubject.

I have ſometimes obſerved a phænomenon to take place during the putrefaction of human bodies, and which I cannot but think of very great importance to be enquired into and known. This is the exhalation of a particular gas, which is the moſt active and dreadful of all corroſive poiſons, and produces moſt ſudden and terrible effects upon a living creature. This I more than once have had an opportunity of remarking in the diſſecting room of Mr. Andravi at

Paris (*). I know that the carbonic acid gas produced by the combuſtion of charcoal, from liquors in fermentation, and by the reſpiration of animals, as well as all other elaſtic fluids except vital air, is incapable of ſuſtaining life; but the aeriform fluid which is exhaled at certain times from animal bodies in putrefaction, is infinitely more noxious than any elaſtic fluid as yet diſcovered; for it not only is incapable of ſuſtaining life in the abſence of vital air, but is dreadfully deleterious, and does not at all ſeem to abate of its corroſive property, even in the preſence of the atmoſpherical fluid. So that it is utterly dangerous to approach a body in this ſtate of putrefaction. I have known a gentleman who by ſlightly touching the inteſtines of a human body beginning to liberate this corroſive gas, was affected with a violent inflammation, which in a very ſhort ſpace

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(*) Mr. Andravi has had more actual practice in anatomy than any other man in Europe. He has diſcovered a method of amputating the humerus at the articulation, by which he ſaves the deltoid muſcle, and the parts are healed in a few days: an improvement very little known, but which in England would render him immortal. He is looked upon at Paris as a very ſingular man, becauſe he always ſpeaks his mind, and is as much an admirer of ſimplicity in chirurgical operations as our celebrated Meſſrs. Pott and Hunter.

ſpace of time extended up almoſt the entire of his arm, producing an extenſive ulcer of the moſt foul and frightful appearance, which continued for ſeveral months and reduced him to a miſerable ſtate of emaciation. He then went to the ſouth of France; but whether he died, or eſcaped with the loſs of his arm, I have not been able to learn. This is only one example of many which I have ſeen. I have known a celebrated profeſſor who was attacked with a violent inflammation of the nares and fauces from which he with difficulty recovered, by ſtooping for an inſtant over a body which was beginning to give forth this deleterious fluid. It is happy for mankind that this particular ſtage of putrefaction continues but for a few hours; and what may appear very remarkable, this deſtructive gas is not very diſagreeable in ſmell, and has nothing of that abominable and loathſome fetor produced by dead bodies in a leſs dangerous ſtate of corruption; but has a certain ſmell totally peculiar to itſelf, by which it may be inſtantly diſcovered by any one that ever ſmelled it before. This is an object very worthy the attention of phyſicians; it is both extremely intereſting, and very little known; but at the ſame time, it is a ſtudy in the higheſt degree unpleaſant, from the deteſtable ſmell and naſtineſs which attend the putrefaction of animal bodies; and a man muſt be armed with uncommon philanthropy and reſolution to attempt it. I think it probable that there is a rapid fixation of the baſis of vital air in dead bodies at a certain ſtate of putrefaction, on account of the luminous appearance which they ſometimes make, as if all over painted with liquid fire. This phoſphoric ſtate, if I may ſo call it, exiſts but for a few hours at the moſt; and ſometimes affords a more beautiful and brilliant appearance than can be imagined. But whether it takes place in every body, or whether it precedes or follows the exhalation of the corroſive gas above-mentioned, I have not been able to diſcover. Nothing has been experienced more deſtructive to the human race, and in the preſent ſtate of our knowledge more unaccountable, than marſh effluvia, which have ſo often ſwept away whole thouſands together, and carried devaſtation and miſery through populous cities and camps. And theſe effluvia we aſcribe to the putrefaction of vegetables, reptiles, inſects, &c. in moiſt and fenny places during the autumnal heats. The plague alſo, which has ſo often threatened to annihilate the human ſpecies, is ſuppoſed to originate from ſimilar cauſes; from the effluvia of different animal and vegetable ſubſtances in putrefaction during the more intemperate ſeaſons. As I know of nothing more active and corroſive in nature than the gas above-mentioned, which diſengages from animal bodies in putrefaction, I think it probable, that the ſame gas modified, or mixed, or united with others, may be the occaſion of the plague, &c. If ſo, ſurely it deſerves our attention; and by acquiring a knowledge of its cauſe, nature, and affinities, we may know how either to prevent its production, or protect ourſelves from its influence after it is produced. We have had an Engliſhman generous enough to make a voyage to the Levant, to cure the Turks of the plague: ſuch an adventure undertaken by men of genius and ſcience, may be productive of ſome benefit to mankind; but if my ideas are juſt, we have here a ſeeming poſſibility of being able to tear up the evil by the very roots.

JAMES ST. JOHN.

CHYMICAL

CHYMICAL NOMENCLATURE.

A MEMOIR

ON THE NECESSITY OF REFORMING AND BRINGING TO PERFECTION THE NOMENCLATURE OF CHEMISTRY; READ TO THE PUBLIC ASSEMBLY OF THE ROYAL ACADEMY OF SCIENCES IN PARIS, ON THE 18th OF APRIL, 1787.

By Mr. LAVOISIER.

THE work which we lay before the Academy has been undertaken in common by Mr. de Morveau, Mr. Berthollet, Mr. de Fourcroy, and by me; it is the result of a great number of consultations, in which we have been assisted by the learning and advice of some geometricians of the Academy, and of several chymists.

A long time before the modern discoveries had given a new appearance to the science in general, chymists perceived the necessity of giving it a nomenclature a more eligible modification. Mr. Maquer, and Mr. Beaumé intereſted themſelves in this reform, both in their public lectures for a ſeries of years, and in the writings which they have publiſhed. Theſe gentlemen were among the firſt to diſtinguiſh each metallic ſalt by the name of the acid and of the metal which enter into its compoſition; claſſing under the appellation of *vitriols* all the ſalts which reſult from the diſſolution of metallic ſubſtances in the vitriolic acid; and under the appellation of *nitres* all the ſalts produced by the union of the nitrous acid with different bodies. Of late years, Mr. Bergman, Mr. Buquet, and Mr. de Fourcroy have carried the application of the ſame principles to a much greater length; and the nomenclature of chymiſtry has acquired conſiderable improvement under their inſpection.

Yet no chymiſt conceived an idea of ſo extenſive a plan as that preſented by Mr. de Morveau in 1782. At that time he had undertaken the management of the chymical part of the methodical Encyclopedia. Therefore, being commiſſioned to ſpeak for the whole body of the French chymiſts, in a national work, he could not help perceiving that it was neceſſary not only to create a new language, but alſo to make it be adopted, and that the univerſal agreement of the chymiſts was what alone could ſtamp the proper mark of approbation on the new coined chymical ſpecies, and render it current for ever. He therefore thought, that before he ſhould attempt ſuch a work, it would be neceſſary to lay the outlines of his deſign before the chymiſts of his nation: to ſhew the general principles which were to direct him, to preſent the plan of the ſyſtematical nomenclature which he purpoſed to adopt, and to obtain from his cotemporaries their conſent, or at leaſt a tacit permiſſion. His memoir was publiſhed in the Journal de Phyſique, and he was modeſt enough to ſolicit not the votes but the objections of every chymiſt whatſoever.

Although Mr. de Morveau had here done a great deal, yet it was not ſufficient. It had been perceived by himſelf, that in a ſcience which is in a ſtate of mobility, which with wonderful rapidity is advancing to perfection, and in which ſuch new and contending theories have ariſen, it was extremely difficult to compoſe a new language agreeable to all the different ſyſtems, and capable of ſatisfying the opinions of all parties without adopting any in particular.

To advance on ſurer ground, Mr. de Morveau has thought proper to confide in the advice of ſome of the chymiſts of the Academy; with which intention he has come to Paris; he has offered to make a ſacrifice of all he has invented, of all the fruits of his labor; and has preferred the love of

ſcience

ſtrangers to the love of literary property. In the [illegible] conſultations which we have had, we [illegible] endeavoured to inſpire ourſelves with the [illegible]; we have forgotten what has been already done, what has been our own productions, that we ſhould have in view only that which was to be done; [illegible] until we had re[illegible] of chymiſtry, and maturely [illegible] the metaphyſic of languages, and the conformity of ideas with words, that we ventured to preſent this general Nomenclature.

We ſhould not ſo eaſily intereſt this Aſſembly in our favour were we at preſent to enter fully into the diſcuſſion of the technical terms which we have [illegible] theſe particulars ſhall be the ſubject of a [illegible] memoir to be preſented by Mr. de Morveau, and which we reſerve for our private meetings. At preſent we ſhall point out to the Academy only the general objects which we have had in view, and the ſpecies of metaphyſic which has guided us; theſe principles [illegible] down, we ſhall have nothing more to do than to make the proper applications, to preſent a regular plan and [illegible] ſummary explications.

Languages are intended, not only to expreſs by ſigns, as is commonly ſuppoſed, the ideas and images of the mind; but are alſo analytical methods, by the means of which, we advance from the known to the unknown, and to a certain de-

gree

ples in the manner of mathematicians: let us try [illegible] to this idea.

Algebra is the analytical method by excellence; it has been invented to facilitate the operations of the understanding, and to render reasoning more concise, and to contract into a few lines what would otherwise require whole pages of discussion; in fine, to lead, in a [illegible] manner to the solution of the most complicated questions. Even a moment's reflection is sufficient to convince us that algebra is in fact a language: like all other languages it has its representative signs, its method, and its grammar, if I may use the expression: thus an analytical method is a language: a language is an analytical method, and these two expressions are, in a certain respect, synonymous.

This truth has been exposed with all the precision and perspicuity in the Logic of the abbé de Condillac, a work which cannot be too much studied by the youth that dedicate themselves to the sciences, [illegible] would be wanting a few ideas. He has explained in that work how the language of algebra could be transformed into the ordinary language, and vice versa, how the progress of the understanding and judgment is the same in both, and how the art of reasoning is the art of analysing

But if languages really are inſtruments invented by men to facilitate the operations of the mind, it is of ſpecial conſequence that theſe inſtruments be of the moſt perfect kind that it is poſſible to contrive; and whoſoever endeavors to advance them to a more elevated degree of refinement, contributes moſt certainly a material aſſiſtance to the progreſs of the ſciences.

The perfection of a language is more particularly neceſſary to ſuch as begin the ſtudy of a ſcience: this is evident from a moment's reflection on the manner in which our knowledge is acquired.

In our infancy our ideas are cauſed by our natural wants; the ſenſation occaſioned by our wants produces the idea of objects proper to ſatisfy ſuch wants, and inſenſibly by a train of ſenſations, of obſervations and of analyſes, a ſucceſſion of ideas are generated, all connected with one another; of which an attentive obſerver may to a certain point diſcover the thread of the concatenation, and which conſtitute the totality of what we know.

When firſt we apply ourſelves to the ſtudy of a ſcience, we are, in reſpect to that ſcience, in a ſtate very ſimilar to that of infants, and the path which we have to purſue is preciſely that which nature follows in the formation of their ideas. In the ſame manner as in a child the idea is a ſequel, an effect of the ſenſation; and thus it is the ſenſation that gives birth to the idea; in like manner, the ideas of a perſon who begins to ſtudy the phyſical ſciences ſhould only be the immediate effect of an experiment or an obſervation.

We may even ſay that in reſpect to ſuch ſciences, he is in a ſituation leſs advantageous than the ſituation of the infant who acquires his firſt ideas. If the infant be deceived by the agreeable or diſagreeable effects of the ſurrounding objects, nature affords him numberleſs means for his rectification. Every moment the judgment that he had conjectured becomes corrected by experience. Privation and pain are the conſequences of a falſe judgment, enjoyment and pleaſure are the conſequences of a juſt one. Under ſuch inſtructors knowledge is very ſoon acquired, and the faculty of reaſoning with exactneſs muſt of courſe be poſſeſſed when a contrary method cannot be proſecuted without diſagreeable ſenſations.

It is by no means the ſame in the ſtudy and practice of the ſciences: the falſe judgments which we conceive intereſt neither our exiſtence nor our happineſs, no effort of nature obliges us to rectify ourſelves; on the contrary the imagination, which continually inclines to tranſport us beyond the limits of truth, and that confidence which all perſons place in themſelves, and which is ſo nearly allied to ſelf-love, entice us to draw concluſions which are not the immediate conſequence of facts:

facts. It is not therefore aſtoniſhing that, in the infancy of chymiſtry, ſuppoſitions inſtead of concluſions were drawn, and that thoſe ſuppoſitions being tranſmitted from age to age, degenerated into prejudices, and that theſe prejudices at length became adopted and regarded as fundamental truths by men of abilities and genius.

The only means of preventing all ſimilar deviations, conſiſts in ſuppreſſing, or at leaſt ſimplify as much as poſſible our reaſoning, which alone can lead us aſtray, and continually ſubmit it to experience; to retain facts alone which are proofs afforded by nature and which cannot deceive us; to ſearch for the truth only in the ſucceſſion of experiments and obſervations, eſpecially in the order in which they preſent themſelves, in the ſame manner as mathematicians proceed to the ſolution of a problem by the ſimple arrangement of the data, and by reducing the reaſoning to ſuch plain operations, and to ſuch conciſe concluſions, that they never loſe ſight of the demonſtration which they purſue.

This method, which is ſo neceſſary to be introduced into the ſtudy and teaching of the ſcience of chymiſtry, is cloſely connected with the reformation of the nomenclature: a language perfectly well conſtructed, a language applicable to the ſucceſſive and natural order of ideas, muſt produce a neceſſary and immediate revolution in the method of teaching: it will not permit the profeſſors of chymiſtry to deviate from the line of nature; and they muſt either reject the nomenclature or irreſiſtibly purſue the delineated courſe. It is thus that the logic of the ſciences is neceſſarily connected with their language, and although this fact be not a new one, although it has already been advanced, yet as it is not ſufficiently known by the generality of perſons we have thought proper to repeat it here.

If after having conſidered languages as analytical methods we conſider them as a collection of figurative ſigns, they will preſent us with another kind of obſervations. In this ſecond point of view, we ſhall have three objects to conſider in every phyſical ſcience. The ſeries of facts which conſtitute the ſcience, the ideas which recall ſuch facts, and the words that expreſs them. The word ſhould give birth to the idea, and the idea ſhould repreſent the fact: three impreſſions of the ſame ſeal; and as the ideas are preſerved and tranſmitted by words, it is a neceſſary conſequence that the ſcience can never be brought to perfection, unleſs the language be firſt rendered true and correct, and that how true ſoever the facts ſhould be, and how juſt the ideas which they produce, falſe impreſſions muſt always be occaſioned as long as there are no exact expreſſions to convey them. The perfection of the chymical

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nomenclature, beheld in this point of view, conſiſts in rendering the ideas and facts in their exact truth, without ſuppreſſing any thing, or making any additions whatſoever: it ſhould be nothing leſs than a faithful mirror; for, we can never too much repeat it, it is not nature that deceives us, but the fallacy of our own judgment.

From this it is evident, without our being obliged to inſiſt upon the proofs, that the language of chymiſtry, ſuch as it is at preſent, has not been formed according to theſe principles; nor was it poſſibile that it could have been, in ages when experimental phyſics were very little known, and when almoſt every thing was the production of fanciful imagination, and almoſt nothing the reſult of deliberate obſervation; in an age when men were ignorant even of a method of ſtudying the ſcience.

Beſides this, many of the chymical terms have been introduced by the alchymiſts: terms which we ſhould not expect to find perfect, knowing how difficult it would be for the authors to convey to their readers a knowledge which they had not themſelves; I mean ideas agreeable to truth and accuracy. Moreover, their deſign was not always to ſpeak ſo as to be underſtood. They made uſe of an enigmatical language peculiar to themſelves, which in general preſented one meaning for the adepts and another meaning for the vulgar, which at the ſame time contained nothing that was rationally intelligible either for the one or the other. This is the reaſon that the oil, the mercury and even the water of theſe philoſophers, were neither oil, nor mercury, nor water, according to the common acceptation of the words. *Homo galateus*, an armed man, ſignified a cucurbit furniſhed with its head; a death's head ſignified a veſſel for diſtilling; and *caput mortuum*, the reſiduum of a diſtillation.

An other kind of philoſophers, who have not leſs disfigured the ſcience and its language, are the ſyſtematical chymiſts. They have in a great meaſure, totally metamorphoſed many chymical facts, and even eraſed from the number of proofs whatever did not agree with their ideas; and this proceeding they have accompanied with all the pomp of argument, ſuch as might ſhroud the naked facts in a veil of learned obſcurity; in ſuch a manner that the ſcience in their hands became no more than the baſeleſs fabric of their imaginations.

It is now time to remove the variety of impediments which retard the progreſs of chymiſtry; to introduce into the ſcience a true taſte for analyzing; and we have ſufficiently demonſtrated that this reformation ſhould be commenced by bringing the language to a ſtate of perfection. We are very far, without doubt, from knowing the entire extent of all the parts of chymiſtry: it muſt be therefore expected that a new nomenclature, although formed with all poſſible attention, muſt be far from abſolute perfection; but provided that it has been undertaken upon good principles, provided that it is rather a method of naming than a nomenclature, it muſt naturally adapt itſelf to future diſcoveries, and indicate before-hand, the place and name of ſuch new ſubſtances as may be found out, and can never require more than ſome local and particular reformations.

We ſhould be in contradiction with ourſelves, were we at preſent to enter into great diſcuſſions of the conſtituent principles of bodies and of their elementary particles. We ſhall content ourſelves here with regarding as ſimple all the ſubſtances which we cannot decompoſe; all ſuch as we obtain in the laſt reſult from chymical analyſis. Without doubt, in time to come, theſe ſubſtances which to us appear to be ſimples, will in their turns be decompoſed, and probably we are at this epoch in reſpect to the ſiliceous earth and to the alkalies; but our imagination ought not to anticipate the facts, and we muſt not take upon us to ſay more than nature preſents to our underſtanding.

Theſe are the ſubſtances which we, without doubt improperly, denominate ſimple ſubſtances, that we have thought proper to place the firſt in order: the greater number already have names univerſally known; and we have made it a rule with ourſelves always to retain the ancient names unleſs when very powerful motives ſhould induce us to the contrary. But when theſe names produce ideas evidently falſe, when they confound ſubſtances with one another endowed with different and oppoſite properties, we think ourſelves permitted to ſubſtitute other appellations, which we have derived in general from the Greek. We have endeavored to expreſs by theſe names the moſt general and characteriſtic properties of the ſubſtances which they repreſent. We have in this found two advantages; the one to aſſiſt the memory of thoſe beginning their ſtudies, who cannot without difficulty retain a new word when it is abſolutely void of meaning; the other to accuſtom them from the firſt not to admit any word without connecting to it an idea.

In reſpect to the bodies compoſed of two ſimple ſubſtances, as their number is very conſiderable, it appeared indiſpenſibly neceſſary to arrange them in different claſſes. According to the natural order of ideas, the title of claſs and genus is that which reminds us of the properties common to a great number of individuals; but the title of ſpecies is that which indicates the particular properties of certain individuals. This natural logic belongs to all the ſciences, and we have attempted to apply it to chymiſtry.

The acids, for example, are compoſed of two ſubſtances of the order of thoſe which we regard as ſimple; the firſt is that which conſtitutes the acidity and is common to all, from which ſubſtance ſhould be taken the name of the claſs or genus: the ſecond is that which is different for each acid, which is particular to each, and which diſtinguiſhes them from one another; and it is from this ſubſtance that the ſpecific name ſhould be derived. But, in the greater number of acids, the two component principles, the acidifying and the acidified principle, can exiſt in different proportions, which conſtitute the degrees of equilibrium and of ſaturation; this is obſervable in the vitriolic and ſulphureous acids. We have expreſſed theſe two ſtates of the ſame acid, by variegating the termination of the ſpecific name.

The calces of metals are compoſed of a principle which is common to them all, and of a particular principle which is proper to each: It therefore ſeems rational that they ſhould be claſſed under one general name, derived from the principle which is common to them all, and diſtinguiſhed from one another by the particular name of the metal to which each of them belongs.

The combuſtible ſubſtances which are ſpecific and particular principles in the acids and in the calces of metals, are ſuſceptible in their turns of becoming principles in a great number of combinations. The livers of ſulphur and all the ſulphureous compoſitions, have been for a long time the only ſubſtances with which we were acquainted in this genus: it is known at preſent that charcoal combines with iron, and perhaps with a great many other metals; that there reſult, according to the proportions, ſteel, black lead, &c. We have likewiſe aſſembled theſe different combinations under different names, derived from that of the common ſubſtance with a termination indicating that analogy, and have ſpecified them under other names derived from the names of the ſubſtances particular to each.

The nomenclature of bodies compoſed of three ſimple principles, preſents ſomewhat more difficulty in proportion to the number of ſubſtances, and eſpecially becauſe the nature of their component principles could not be expreſſed without employing more compound appellations. We were obliged to conſider in the bodies which form this claſs, ſuch for example as the neutral ſalts, 1. the acidifying principle which is common to all; and, 2. the acidifiable principle which is proper to each particular ſpecies of ſalt. We have taken the name of each claſs of ſalts from that of the acidifiable principle common to all the individuals of that claſs, after which we have diſtinguiſhed each ſpecies by the name of its particular, ſaline terreſtrial or metallic baſis.

A ſalt, although compoſed of three of the ſame principles, can nevertheleſs exiſt in three ſeveral ſtates, by even the variation of their proportions. Stahl's ſulphureous ſalt, the vitriolated tartar, and vitriolated tartar with exceſs of acid, are three different ſalts, poſſeſſing very different properties, and nevertheleſs all compoſed of ſulphur, of the acidifying principle, and of fixed alkali. Our nomenclature would be defective, if it did not expreſs theſe different ſtates, and we have effected it by changing the terminations, which we have rendered uniform to expreſs a ſimilar ſtate of different ſalts.

In ſhort, we have ſo well ſucceeded that by a ſingle word, it is inſtantly evident what is the combuſtible ſubſtance entering into any compoſition; if that combuſtible ſubſtance is combined with the acidifying principle, and in what proportion; in what ſtate the acid is, and to what baſis united; if there is a perfect or exact ſaturation; and if it is the acid or if it is the baſis which is in exceſs.

It muſt be ſuppoſed that we could not have proceeded ſo far in theſe different affairs, without doing more or leſs violence to eſtabliſhed cuſtom;

and without adopting denominations which may ſound harſh and barbarous for the firſt recital; but we have remarked that the ear eaſily becomes acquainted with new words, eſpecially when they are connected together by one general and rational ſyſtem. At any rate the names which are in common uſe, ſuch as *powder of algaroth*, *ſalt of alembroth*, *Pompholix*, *Phagedenic water*, *turbith mineral*, *Æthiops*, *Colcothar*, and ſeveral others, are neither leſs diſcordant, nor ſurely leſs extraordinary; continual practice and a great memory are neceſſary to retain ideas of the ſubſtances indicated by ſuch terms, and eſpecially to recollect to what genus of combination they belong. The terms of *oil of tartar by the bell*, *oil of vitriol*, *butter of antimony*, *butter of arſenic*, *flowers of zink*, &c, are ſtill more ridiculous, becauſe they give birth to falſe ideas; becauſe, properly ſpeaking, there does not exiſt in the mineral kingdom, and eſpecially in the metallic, either butter, or oil, or flowers; in fine, becauſe the ſubſtances expreſſed by theſe deceitful names are for the moſt part violent poiſons.

It may probably be objected to us that we have changed the language which our predeceſſors, our inſtructors, have uſed, which they have ornamented and refined, and tranſmitted to us their poſterity. Yet, let us conſider, that Bergman and Macquer have ſolicited this reformation, and

thought

thought it highly neceſſary. The learned profeſſor of Upſal, Bergman, wrote in theſe words, not long before his death, to Mr. de Morveau. *Have no mercy on any improper denomination. Thoſe who already know chymiſtry will always underſtand: theſe who do not as yet know it will underſtand the ſooner.* Thus finding ourſelves called upon to cultivate the field which has produced ſuch abundant harveſt to theſe celebrated men, we have conſidered it as our duty to accompliſh the laſt inclination which they have expreſſed.

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A MEMOIR.

TO EXPLAIN THE PRINCIPLES OF THE METHODICAL NOMENCLATURE, READ TO THE ROYAL ACADEMY OF SCIENCES IN PARIS, ON THE 2d OF MAY, 1787.

By Mr. de MORVEAU.

THE principles of which the general expoſition was contained in the memoir of Mr. Lavoiſier, without doubt are ſufficient to juſtify our deſign of reforming the chymical nomenclature; theſe principles have appeared to us to carry with them ſuch conviction as cannot fail to acquire univerſal approbation, after which it would ſeem that we had nothing more to do but preſent to the Academy the reſult of our common labor, or the ſynopſis formed according to thoſe principles: but we were of opinion that it was incumbent on us to give an account to the Academy of the reaſons which have directed us, and even thereby to acquire information to determine us in the choice of the principal denominations: that it eſpecially was of importance to the ſucceſs of the undertaking, to ſurmount the difficulties of retaining and hearing the new denominations, by reducing to a ſingle ſheet the entire ſyſtem, containing all the neceſſary examples for the formation of compound names; in fine, that it was neceſſary to add to it the latin verſion of the new nomenclature, thereby to demonſtrate, how this ſyſtem when once adopted would become agreeable to every idiom, and to contribute as much as poſſible to the regulation of that uniformity of language which is ſo eſſentially neceſſary to the communication of diſcoveries and to the progreſs of the ſcience.

Such are the ſubjects of the preſent memoir, which ſhall be no more than the expreſſion of the unanimous wiſh, and the reſult of all the diſcuſſions and conferences which we have had upon the ſubject. When I publiſhed an eſſay on the chymical nomenclature in the Journal de Phyſique for the month of May 1782, I did not think that the ſimple merit of having perceived the neceſſity of correcting the nomenclature, would at this day have procured me the ſatisfaction of being occupied with ſome of the members of the Academy, of being charged by them to preſent the plan, and to be able to gain that kind attention which the Academy has always been pleaſed to ſhew.

In the order which we have propoſed to ourſelves, the ſimple ſubſtances, that is to ſay, ſuch as chymiſts to the preſent time have not been able to decompoſe, ought chiefly to fix our attention, becauſe the denominations of bodies which by exact analyſis can be reduced to their elements, are properly expreſſed by the re-union of the names of thoſe ſame principles.

The ſubſtances which we have not as yet been able to decompoſe may be divided into five claſſes.

The *firſt claſs* contains the principles which without preſenting any remarkable analogy with each other, have notwithſtanding one thing in common, that is to ſay, that they appear to approach the neareſt to a ſtate of ſimplicity, which makes them reſiſt all farther analyſis, and at the ſame time renders them ſo active in their combinations.

The *ſecond* claſs includes all the acidifiable baſes or radical principles of the acids.

In the *third* we place all the ſubſtances whoſe remarkable characteriſtic is to appear in a metallic form.

The *fourth* contains all the different earths.

And the *fifth* is occupied by the alkalies.

After theſe five claſſes we ſhall indicate in an *appendix* the more compound bodies, which, combining as ſimple ſubſtances or without undergoing any ſenſible decompoſition, have appeared to us worthy of occupying a place in the methodical nomenclature for the completion of the ſyſtem.

We ſhall here give ſome general notions of each of theſe claſſes.

FIRST SECTION.

OF THE SUBSTANCES WHICH APPROACH NEAREST TO A STATE OF SIMPLICITY.

The ſubſtances of the firſt claſs are five in number; *light*, *matter of heat*, *dephlogiſticated* or *vital air*, *inflammable gas*, and *phlogiſticated air*; this laſt ſhall be placed in the nomenclature among the acidifiable baſes, becauſe it is really the baſis of nitrous acid; but it is evident that it alſo poſſeſſes properties of a different nature, which induce us to place it in this claſs.

Light and heat appear in many circumſtances to be productive of the ſame effects; but as our knowledge is not perfect enough to be able to determine their identity or their difference, we have preſerved for each its particular name: we have ſuppoſed that we ought to diſtinguiſh heat only, which is generally thought to be a ſenſation produced by a material principle, and we have expreſſed this latter by the word *caloric*. Thus we ſhall ſay that the caloric paſſed from one body into another without producing a ſenſible heat, or that the caloric produced heat, &c. This manner of expreſſion will be as clear, and will cauſe leſs embarraſſment in diſcourſe than that of *the matter of heat*, which the neceſſity of ſpeaking ſo as to be underſtood has for ſome time paſt introduced.

When the appellation of dephlogiſticated air was changed into that of vital air, a choice more agreeable to reaſon was made, by ſubſtituting to an expreſſion founded upon mere hypotheſis, a term derived from one of the moſt remarkable properties of that ſubſtance, and which is ſo eſſentially characteriſtic of it that one ſhould never heſitate to uſe it whenever it be neceſſary to indicate ſimply that portion of the atmoſpherical air which maintains reſpiration and combuſtion; but it is at preſent well demonſtrated that this portion of the atmoſpherical fluid is not always in the ſtate of air or gas, that it is decompoſed in a great many operations, and loſes, at leaſt in part, the light and caloric which are what principally conſtitute it vital air: this ſubſtance ſhould be conſidered and repreſented in that ſtate of its greateſt ſimplicity; the logic of the nomenclature requires even that it be named the firſt, that the word which would recal the idea become the model for the denominations of its compounds. We have acted agreeable to theſe conditions by adopting the word *oxygen*, deriving it as Mr. Lavoiſier propoſed, from the Greek words ὀξυς *acid*, and γείνομαι *I beget*, on account of the property of this principle, the baſis of vital air, to change a great many of the ſubſtances with which it unites into the ſtate of acid, or rather becauſe it appears to be a principle neceſſary to acidity. We ſhall therefore ſay that vital air is oxygen gas, and that oxygen unites with ſulphur, and with phoſphorus during their combuſtion, and to metals in their calcination, &c. and this language will be at the ſame time both exact and perſpicuous.

On applying the ſame principles to the aeriform ſubſtance called inflammable gas, the neceſſity of having a more explicit appellation is evident at the firſt view; it is true that this fluid is capable of being conſumed, but this property does not excluſively belong to it, notwithſtanding that it is the only ſubſtance which produces water by its combuſtion with oxygen gas. This is the property which appeared to us to be the moſt worthy of affording a name, not for the gas itſelf, which is a compoſition, but for the more fixed principle which conſtitutes the baſis, and we have therefore called it *hydrogen*, from ὕδωρ *water* and γείνομαι *I beget*; experiments having proved that water is nothing but oxygenated hydrogen, or the immediate production of the combuſtion of oxygen

gen gas with hydrogen gas, deprived of the light and caloric which diſengage during the combuſtion.

The denomination of *phlogiſticated air* has been abandoned by the greater number of chymiſts; (1) who thought that it expreſſed more than it ought, even a long time before it was known to expreſs an error. It is at preſent well known that this fluid, which makes ſo conſiderable a part of the atmoſpherical air, is not vitiated vital air; that it has nothing in common with reſpirable air but its ſtate of elaſtic fluidity, which is cauſed by its union with caloric: in ſhort, that in loſing this ſtate of gas it becomes an element proper to many combinations. As there are ſeveral proofs of its being a diſtinct ſubſtance, a particular name for it was neceſſary, and in ſearching for one we endeavoured to avoid at the ſame time the inconvenience of one of thoſe perfectly inſignificant words which are not connected with any known idea, and which offer no hold to the memory, and the inconvenience perhaps the more conſiderable of prematurely affirming what has been only foreſeen.

It reſults from ſome ſynthetical experiments made by the Hon. Mr. Cavendiſh, and confirmed by a great number of analyſes, that this principle is

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(1) *See* Bergman, Diſſertat. XXXII. Mem. de l'Academie. Roy. de Sciences, Elemens de Mr. de Fourcroy, &c.

is a component part of the nitrous acid. Mr. Bertholet has proved its exiſtence in the volatile alkali, and in animal ſubſtances; it is probable that the fixed alkali alſo contains it, and from this it appears to deſerve the appellation of *alkaligen*, as was propoſed by Mr. de Fourcroy. But the analyſis of theſe compoſitions is not ſufficiently advanced to determine poſitively the manner of exiſtence of this principle in thoſe different ſubſtances, and from thence to attribute to it a conſtant and uniform property; beſides, it was not poſſible by a ſingle word to expreſs the double property of forming the radical of a certain acid, and aſſiſting in the production of an alkali; there did not appear any reaſons for conſidering the latter of theſe properties in preference to the former, and by admitting the one in a manner to exclude the other. In this ſituation we thought it were the better way to derive the denomination from its other property, which it manifeſts in a very great degree, viz. not to maintain the exiſtence of animals, to be really non-vital; in ſhort to be ſo in a more conſiderable reſpect than the hepatic and acid gaſes, which do not like it conſtitute an eſſential part of the atmoſpherical maſs, and therefore we have denominated it *azot* from the Greek privative α and ζωὴ *life*. After this it may not appear difficult to remember that the air which we breathe is a compoſition of oxygen gas and azotic gas.

SECOND SECTION.

OF THE ACIDIFIABLE BASES OR RADICAL PRINCIPLES OF THE ACIDS.

The claſs of the ſubſtances whoſe principle characteriſtic is to be capable of being tranſformed into the ſtate of acid is much more extenſive; but at the ſame time it has more uniformity, and the conſidering of a few ſubſtances and the following of them in their various compoſitions, is ſufficient to give a perfect idea of all this part of the nomenclature.

In this claſs are to be diſtinguiſhed the acids whoſe acidifiable baſes are known, and the acids whoſe acidifiable baſes have not as yet been ſeperated by chymical proceſs from the general acidifying principle.

The acidifiable baſes that are known are, *azot*, the baſis of the nitrous acid, which we have mentioned in the preceding ſection, *charcoal*, *ſulphur*, and *phoſphorus*. On theſe baſes we have eſtabliſhed the method of naming, becauſe their combinations are the moſt numerous, the moſt familiar to us, and the moſt eaſy to follow; as to the others, the baſe of the marine acid, of the acid of borax, of the acid of vinegar, &c. &c. we have only expreſſed the ſimple ſubſtance of each acid which modifies the oxygen, by the expreſſion of acidifiable baſe, or, for more conciſeneſs, *radical* of the acid; thereby to continue the ſame analogy, and to be able to conſider each of theſe ſubſtances in order and in an abridged manner, without hazarding any thing on their eſſential properties, until they ſhall have been diſcovered and proved by deciſive experiments. It is probable that many of theſe acids have compound baſes, or that they differ from one another merely by the diverſity of proportion of the ſame principles: when their elements and the order of their deſcent ſhall be diſcovered by exact analyſes, it will without doubt be neceſſary to reduce them to their proper ſituations, but nevertheleſs it therefore ſhould not be thought uſeleſs to ſtudy their properties and attractions in their preſent compound ſtate, and therefore we cannot avoid giving them a place in the ſyſtem of our nomenclature.

Thoſe things being premiſed, let us take for example *ſulphur*, or in other words the acidifiable baſe of the vitriolic acid, which is the third in the claſs; the numerous productions of its combinations, known this long time paſt, will enable us to explain the rules which we have formed, and follow the application in the moſt advantageous manner, to ſhew the progreſs of the compoſitions and the general ſyſtem of the table.

Sulphur by combining with oxygen produces an acid: it is evident that to preſerve the idea of this oxygen, and to expreſs clearly the firſt degree of compoſition, the name of the acid ſhould be derived from the name of its baſe; but this acid preſents itſelf in two ſtates of ſaturation, and therefore manifeſts different properties. That they ſhould not be confounded, a name ought to be given to each of theſe ſtates, which always retaining its primitive root, would yet expreſs this difference: and the ſame ſhould be done for the ſalts formed by theſe two acids; after this the other direct combinations of ſulphur with the alkalies, the earths, and the metals, ſhould be conſidered: the five different ſtates of the ſame principle are expreſſed by as many different terminations adapted to the ſame original word, in the manner that appeared to us leaſt unharmonious to the ear.

Sulphur*ic* acid ſignifies ſulphur as much as poſſible ſaturated with oxygen; which compoſition was formerly called vitriolic acid.

Sulphur*eous* acid means ſulphur united to a leſs quantity of oxygen; which before was called volatile ſulphureous vitriolic acid, or phlogiſticated vitriolic acid.

Sulph*at* is the general name for all the ſalts formed by the ſulphuric acid.

Sulph*ite* ſignifies the ſalts formed by the ſulphureous acid.

Sulph*uret* denominates all the combinations of ſulphur not advanced to the ſtate of acid, and regularly diſplaces the improper and abſurd appellations of liver of ſulphur, hepar, pyrite, &c.

Every one muſt perceive, at the firſt glance, all the advantages of ſuch a nomenclature, which at the ſame time that it indicates the different ſubſtances, defines them, points out their conſtituent principles, claſſes them in their order of compoſition, and indicates in a manner, even the proportions which diverſify their properties.

Some perſons perhaps may be aſtoniſhed that we ſhould include in this reformation the words vitriolic acid and vitriol, which cuſtom appears to have rendered ſacred; in reality, it is the moſt conſiderable innovation, and the only one of the kind to be found in the whole nomenclature: we have felt all the force of the objection, we have conſidered it for a long time, and we would not have heſitated to ſuffer theſe words, although improper, to remain, through reſpect for eſtabliſhed cuſtom, if we were to conſider them only in reſpect to themſelves; but it was neceſſary to form a ſyſtem for the entire claſs of acids, a claſs the moſt numerous and important; and ſurely no perſon will reproach us for not having ſacrificed all the advantages of this method to the preſervation of the word *vitriol*. Preciſely, it is becauſe the acid formed by ſulphur is that which is the moſt frequently employed, which enters into the greater number of compoſitions, and eſpecially becauſe it is that which learners firſt begin to ſtudy, that we judged it the more neceſſary to be ſubmitted to the rigorous application of our rules, thereby that it might ſerve to facilitate the ſtudy of the other acids by an agreeable conformity. Inſtead of creating a new word, we had only to modify by a new termination the word ſulphur, which has been for a long time admitted by every chymiſt. We have likewiſe conſidered that the words *vitriolic acid*, *vitriol of iron*, and *vitriol of zink*, are not uſed by artiſts and tradeſmen, but in their place they make uſe of the expreſſions of *ſpirit of ſulphur*, *green copperas*, *white copperas*, &c. and we take it for granted that the chymiſts, who already have abandoned theſe latter terms, will at preſent voluntarily ſurrender a few terms to render the language of chymiſtry clear and uniform.

As to the other acids, we had much leſs to do in reducing their appellations to our ſyſtematical rules, as is evident from the words *nitrous acid*, *tartareous acid*, *phoſphoric acid*, &c.

There is no ſubſtance whatever which has received ſo many different appellations as the gas which Dr. Black has called *fixed air*; at the ſame time expreſsly reſerving the liberty of changing the denomination, which he confeſſed was improperly applied. The diſagreement of the chymiſts of every country, gives us, without doubt, a more perfect liberty, becauſe it ſhews the neceſſity of motives being preſented capable of making them all unanimous: and we have made uſe of that liberty according to our principles. As fixed air has been perceived to be produced by the direct combination of *charcoal* with *vital air*, by the aſſiſtance of combuſtion, the name of this gazeous acid can no longer be arbitrary, but neceſſarily muſt be derived from its radical, which is the pure carbonic matter; therefore it is *carbonic acid*, and its compoſitions with different baſes are *carbonats*; and, for the ſake of greater preciſion in the denomination of this radical, by diſtinguiſhing it from charcoal, according to the vulgar acceptation, in idea to iſolate it from the ſmall quantity of foreign matter which it generally contains, and which conſtitutes the aſhes, we adapt to it the modified name of *carbon*, which indicates the pure and eſſential principle of charcoal, and which has the advantage of expreſſing it by a ſingle word, ſo as to prevent all equivocation.

Plumbago, which is only iron united to charcoal, ſhall take the appellation of *carburet* of iron, according to the eſtabliſhed analogy.

Muriatic acid, derived from the latin *muria*, *muriaticum*, has already taken the place of *marine* *acid* in the writings of ſeveral chymiſts; but it is well known that it is an acid of a particular nature, becauſe it imbibes an exceſs of oxygen, and becauſe in this ſtate its acidity ſeems rather to decreaſe than to augment, which perhaps is occaſioned by the oxygen's retaining in that combination a greater quantity of caloric. Whatever be the cauſe of this phenomenon, it was neceſſary that it ſhould have a denomination appropriated to ſo particular a property, which to the preſent time has very falſely been expreſſed by the term *dephlogiſticated marine acid*. The appellations of *oxygenated muriatic acid*, and *oxygenated muriats*, have appeared to us more ſimple and more conformable to our intention of not expreſſing any more than the moſt poſitive facts. Likewiſe according to this rule, we have formed the names of all the other combinations of the muriatic acid: thus corroſive ſublimate, becomes *corroſive mercurial muriat*; the mercurius dulcis, *mild mercurial muriat*; the ſalt produced by the diſſolution of tin in this acid, *muriat of tin*; the butter of tin, *ſublimated muriat of tin*; Libavius's liquor, *ſmoking muriat of tin*, &c.

Analogy induces us to think that the muriatic acid has an acidifiable baſe, as well as the carbonic, ſulphuric, and phoſphoric acids, which like the baſes of theſe latter, ſerves to give a diſtinct and particular property to the produce of a combination of oxygen. We could not expreſs this ſubſtance otherwiſe than by the name *muriatic radical* or muriatic radical principle; in fine, that a name ſhould not be given to an unknown ſubſtance, and that the expreſſion ſhould be limited to the ſimple property with which we are acquainted, and which is to produce this acid. We have had the ſame caution in reſpect to all the other acids with which we are not yet well acquainted, ſome of whoſe baſes will probably be diſcovered in the ſubſtances which we have already named. We are obliged to include in this claſs even the baſes of the vegetable and animal acids, of which we have not as yet any exact analyſis, notwithſtanding the facility with which they are reduced to their elements.

The nature of the acidifiable baſe being independent of the proportion in which it be united to the oxygen, it is evident that the ſulphur is at the ſame time *ſulphuric* radical, and *ſulphureous* radical: but it was alſo neceſſary to render that expreſſion uniform for all the acids; and we have gone no farther than the firſt termination, which ſignifies the moſt complete ſaturation of the acidifiable baſe. Thus we ſay *boracic radical*, and even *tartaric radical*, &c. &c. although we are acquainted only with the tartareous acid, which is the tartaric radical united to a very ſmall portion of oxygen, if we can judge from all that has as yet been obſerved in the phenomena of its combuſtion.

The choice of the one or of the other of theſe terminations became very important to indicate in the combinations of the acids themſelves, the different degrees of ſaturation. As ſoon as they were known we have not heſitated to make the authority of the rule prevail over that of cuſtom, by naming for example, *nitric acid* that in which the azot is impregnated with all the oxygen it is capable of containing, and reſerving the appellation of *nitrous acid* for that much weaker acid where the ſame baſe is united to a much leſs quantity of oxygen.

According to this analogy, phlogiſticated or volatile phoſphoric acid becomes *phoſphorous acid*, the experiments of Mr. Bertholet upon radical vinegar having demonſtrated that it was no more than the common vinegar ſaturated with oxygen, (1) we thought proper to diſtinguiſh the *acetic acid*, and the *acetous acid*. This diſtinction being once eſtabliſhed, has afforded us the *nitrats* and *nitrites*, the *phoſphats* and *phoſphites*, the *acetats* and *acetites*, as has been ſhewn in the denomination of the ſalts formed by the acid of ſulphur: the word *nitre* is the only exception, which, through reſpect to cuſtom, we have retained as ſynonimous with *nitrat-of potaſh*.

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(1) Memoires de l'Academie Royale de Sciences, année 1783.

As to the other acids which have not as yet been obtained in two ſtates of ſaturation with oxygen, and which perhaps are ſuſceptible of only the one or the other, we ought to premiſe, that having only very imperfect conjectures from which to draw our choice of the termination appropriated to either of theſe ſtates, we have not had, in general, any other rule than the ſhuning of ſuch denominations as may ſound diſcordant to the ear, and to deviate as little as poſſible from the path marked out by cuſtom: which reaſons have appeared ſufficient to determine us, until new diſcoveries ſhall be made to indicate the true claſs of thoſe acids, when it will be time to ſubmit theſe conſiderations to the more real intereſt of the ſcience. Moreover, we have always retained that comparative analogy which is indicated by terminations correſponſive to the two ſtates of the acids and of the ſalts which they form. Therefore the *benzoic acid* muſt produce, *benzoats*; the *gallic acid*, *gallats*; the *tartareous acid*, *tartrites*, &c.

The acids which are obtained by diſtillation, from tartar, from ſugar, from wood, &c. have been called by the chymiſts empyreumatic ſpirits: it has appeared to us to be neceſſary to include this property in their denominations; but to render the expreſſion more commodious, we have reduced it to the dyſſyllable *pyro*. In this manner the empyreumatic ſpirit of tartar becomes *pyro-tartareous acid*, and the ſalts *pyro-tartrites*; the empyreumatic ſpirit of wood, *pyro-ligneous acid*, and the ſalts *pyro-lignites*, &c.

As we have ſeen the radical of one acid preſent itſelf in different ſtates of ſaturation with oxygen, in like manner many other acids are capable of uniting to the ſame baſe in different proportions; ſome of them have the property of retaining ſeveral baſes at the ſame time; from which are produced, 1. ſalts with exceſs of acid, 2. ſalts with exceſs of baſe, and, 3. triple or ſur-compound ſalts. Our method requires that all theſe ſalts be clearly diſtinguiſhed, and we think that we have effected it in the moſt ſimple manner: for *the firſt* by adding the epithet *acidulous* to their names; for *the ſecond*, by employing the word *ſurſaturated*, and ſometimes only by preſerving the word in common uſe; and for *the laſt*, by ſpecifying both the baſes and as much as poſſible adjectively expreſſing that of the baſe to avoid the inelegant repetition of the prepoſition *of*.

Cream of tartar is to be called	*Acidulous tartrite of potaſh.*
Salt of ſorrel	*Acidulous oxalat of potaſh.*
Common borax	*Borat ſur-ſaturated with ſoda*, or ſimply *borax*.
Pearly ſalt	*Phoſphat ſur-ſaturated with ſoda.*

Antimoniated vegetable ſalt, (1)	*Tartrite of potaſh containing antimony.*
Salt of ſorrel containing copper	*Cuprious oxalat of potaſh.*

And in the ſame manner for all the other ſurcompounds, the names of which may be eaſily underſtood from their conformity with theſe examples.

It would be ſuperfluous to ſay more on the methodical nomenclature of the acidifiable baſes or radicals of the acids and the productions of their combinations; we proceed to the other ſections of the nomenclature, on which we ſhall be leſs particular, what has precided ſerving to elucidate what is to follow.

THIRD SECTION.

OF THE METALLIC SUBSTANCES.

The diviſion which follows that of the acids in the table of the nomenclature comprehends all the metallic ſubſtances. There are ſome which at the ſame time are capable of being transformed into the ſtate of acids; and we have thought proper to begin with them in particular, that we might not interrupt

(1) See *Opuſcules de Mr. Bergman, Diſſertation* X.

interrupt the chain which appears in certain reſpects to unite the acid radicals with the metals.

We have not by any means taken the liberty of changing the names of the metals, eſpecially of thoſe which being the moſt anciently known, belong more to the vulgar tongue than to the language of chymiſtry: we only have taken the liberty of reducing all the names of ſimilar ſubſtances to the ſame gender in the French language, according to the plan of the celebrated Bergman, who long ago has given the example in the works which he has publiſhed in Latin.

As a metal ſhould be conſidered as a ſimple ſubſtance in the nomenclature, it would be a kind of contradiction to ſpecify it by a compound denomination. This conſideration, without doubt, is ſufficient to expoſe the impropriety of the word *regulus*, and to eraſe it from the chymical catalogue; a word which has been applied only to certain metals, and which already has been abandoned by the greater number of chymiſts.

All the metals unite with oxygen, but they do not all produce acids; there are only four as yet known to poſſeſs this property: beſides, they are likewiſe ſuſceptible of that intermediate ſtate of ſaturation with oxygen, which appears to conſtitute the moſt common ſtate of metals in their combinations. It was ſuppoſed neceſſary to expreſs this particular ſtate by a particular denomination,

mination. That of metallic calces could not be retained, becauſe it had been given to calcined metals on account of a ſuppoſed analogy between them and burned lime-ſtone; and it is well known at preſent that there is no analogy between theſe ſubſtances either in their properties or compoſition. The word calx was formerly given to a kind of earth reduced by fire to its moſt ſimple ſtate; and therefore with propriety it cannot be given to metals to ſpecify the alteration which they undergo in becoming a part of a new compoſition. The principal rule of a good nomenclature is not to attribute the ſame appellations to ſubſtances ſo eſſentially different. We therefore thought ourſelves obliged to find out a new term; and to render it agreeable to our principles, we have formed the word *oxyd*, which in one reſpect tells the ſubſtance to which the metal is united, and in another reſpect ſufficiently ſhews that this combination of oxygen ſhould not be confounded with the acid combination, although it has, as it ought to have, ſome analogy.

A few examples will ſhew with what facility theſe denominations, when once received, can indicate all the ſtates of compoſition through which a metal can paſs.

Pure arſenic, that is to ſay in the metallic ſtate, when ſubmitted to the action of fire, is quickly converted into a whitiſh and friable maſs vulgarly called white arſenic; this we have denominated *oxyd of arſenic* or *arſenical oxyd*; tin becomes inſtantly transformed into the ſtate of oxyd by the action of the nitric acid; all the metals undergo to a certain degree this alteration before they unite with the acids; the particular ſtate of theſe oxygenations varies in ſeveral circumſtances, and ſome epithets relative either to their external appearances, or to the methods of their preparations, appear to us ſufficient to ſpecify their varieties.

The flowers of zink, will be called,	*Sublimated oxyd of zink.*
Diaphoretic antimony	*Oxyd of antimony by nitre.*
Flowers of antimony	*Cryſtalline ſublimated oxyd of antimony.*
Powder of algaroth	*Oxyd of antimony by the muriatic acid.*
Glaſs of antimony	*Vitreous oxyd of antimony.*
Precipitate *per ſe*	*Oxyd of mercury by fire.*
Red precipitate	*Oxyd of mercury by the nitric acid.*
Precipitate of caſſius, &c. &c. &c.	*Oxyd of gold by tin.*

But arſenic, which we have taken for the firſt example, does not afford merely an oxyd, but alſo an acid ſtrongly characterized, when by certain procedures, it is united with a greater quantity of oxygen; in which ſtate we denominate it *arſenic acid*. According to the experiments of Scheele and of Bergman, molybden and tungſtein are in the ſame predicament; the acids formed by theſe metals will take the names of *molybdic acid*, and *tunſtic acid*.

Having thus eſtabliſhed the diſtinction between the metallic acids and oxyds, that is to ſay, between metals which are *oxygenated*, and which are ſimply *oxydated*, it muſt be ſhewn how the methodical nomenclature repreſents theſe different ſtates even through all the remote combinations of which they both are ſuſceptible.

As to the ſalts formed by the metallic acids, their proper denominations are determined by what we have ſaid of acids in general: the ſame rule is ſtill followed, the arſenic acid produces *arſeniats*; the molybdic acid, *molybdats*, always accompanied with the expreſſion of the baſe, &c. The neutral ſalt of Mr. Macquer will be called *acidulous arſeniat of potaſh*.

With equal facility the productions of the combinations of oxydated metals can be expreſſed in the moſt clear and conſpicuous manner. The liver of arſenic by vegetable fixed alkali will be changed into *arſenical oxyd of potaſh*; iron united to white arſenic will be called *arſenical oxyd of iron*; the diſſolution of copper in the volatile alkali will be called *ammoniacal oxyd of copper*; and in the ſame manner will be denominated the other analogical compoſitions.

As to the immediate combinations of metals with other metals in their moſt ſimple ſtate and without either of them being oxygenated, or oxydated, we have not found any term preferable to the word *alloy*; a word which has been for a long time in uſe; and which, attended by the names of the metals, and even, on certain occaſions, by the expreſſion of the reſpective colours and quantities, will ſignify with the greateſt accuracy any compoſition of this nature. The term *amalgam*, which has been beſtowed on the alloys of mercury, deſerves equally to be preſerved, as having the advantage of containing in a ſingle word and without confuſion the ideas of alloy and mercury; thus the metal of printers' types will be called *alloy of antimony and lead*; braſs, *alloy of copper and zink*; the compoſition to lay on looking-glaſſes, *amalgam of tin*, &c. &c.

We have no occaſion here to multiply examples which ancient cuſtom has rendered familiar, and of which we have occupied ourſelves only to ſhew that we have not forgotten any thing which ought to be included in the ſyſtematical nomenclature.

FOURTH SECTION.

OF THE EARTHS.

There are five earths known to the modern chymiſts, which although they bear ſome reſemblance to one another in certain common properties, are yet diſtinguiſhed by real and remarkable characteriſtics, and conſequently require different appellations.

The reaſons which determined us to reduce to the ſame gender in the French language the names of all the metals, more particularly obliged us to introduce the ſame uniformity into the nomenclature of the earths; thus by putting all the names of the earths in the feminine gender, we have the advantage of making it continually preſent to the mind, the limits of the different ſubſtances.

We have alſo conſidered that many of the earths are found in a ſtate really ſaline, but that the name ought not to indicate ſuch compoſition, but the earth itſelf before it became a component part or baſe of a ſalt; the name of every ſalt ought to be formed as we have already ſaid, from the name of the acid together with the name of the baſe.

For the moſt part the earths are found naturally united to one another, either in a ſtate of combination or of mixture; but we have premiſed in the firſt place, that it was not poſſible correctly to expreſs by the ſame word both the ſimple and compound; in the ſecond place, we have ſuppoſed that we ought not to change from their uſual acceptation the names of ſubſtances which exiſt in conſiderable quantities, to apply the ſame names to particular earths contained in ſuch ſubſtances; that the huſbandman, the artiſt, the mineralogiſt who are continually employed about them, would quickly recover names which they would not be obliged perpetually to modify with epithets, or they would perſiſt in retaining the original ſimple names without changing their meaning, at the hazard of confounding every thing, and of being unintelligible to all perſons but themſelves.

From theſe conſiderations we have been induced to ſubſtitute the word *ſilice* for vitrifiable earth, leaving the word ſilex or flint to ſignify that very compound ſpecies of which the flints for fire-arms are formed.

Argil or clay is one of the moſt common ſubſtances on the ſurface of our globe; but the kind of earth from which it receives its principal character is never found in it, in a pure and ſimple ſtate; ſo that to examine the properties of this particular earth, the chymiſts have been obliged to make their experiments on that portion of argil which is contained in alum, and which for that reaſon they have called *earthy baſe of alum:* from thence we derive the word *alumine*; and while the common alum in the language of chymiſtry ſhall be called ſulphat of alumine, the word clay or argil retaining its vulgar acceptation, will ſignify a terreſtrial mixture of which alumine is the principal ingredient.

The earth which exiſts in marble, in chalk, and in ſpath, in the ſtate of a carbonic ſalt, will retain the name of *lime*. We already have had occaſion to remark that this ſimple ſubſtance eſſentially reſided in the portion which remained after the calcination of lime-ſtone, and which has been vulgarly called *quick-lime*, on account of the energy with which it has been perceived to incline to combination; but a chymiſt who perceives this ſimple ſubſtance unconnected with any other matter, muſt think it ſuperfluous to expreſs by a ſecond word a property which is neceſſarily ſuppoſed from the firſt.

The fourth earth which we have to denominate is heavy-earth, or otherwiſe terreſtrial baſe of heavy ſpath; but inſtead of theſe improper and prolix expreſſions we adopt the word *barytes* from βαρὺς, *gravis*, which retains enough of the former denomination to aſſiſt the memory, and which differs ſufficiently from it ſo as not to cauſe a falſe idea: this word, which has been naturalized in ſeveral languages, has alſo been adopted by Bergman (1).

The fifth earth is *magneſia*; it has for a long time been called magneſia alba, to diſtinguiſh it from what we have called black oxyd of manganeſe, to which they alſo gave the name of magneſia! We had only to ſuppreſs the epithet, which became quite unneceſſary.

It frequently is convenient, and ſometimes neceſſary for the perſpicuity and elegance of ſtile, to change ſubſtantive nouns into adjectives; and the denominations which we have adopted by no means exclude this liberty. Thus the liquor of flints may be called *ſiliceous alkali*, or *ſiliceous potaſh*; and the expreſſions of *aluminous nitrat*, *calcareous muriat*, *barytic acetite*, and *magneſian tartrite*, are ſynonimous to *nitrat of alumine*, *muriat of lime*, *acetite of barytes*, and *tartrite of magneſia*.

FIFTH SECTION,

OF THE ALKALIES.

Among all the ſubſtances continually employed in chymical operations none require a more complete reform than theſe which are included in the general name of *alkalies*. How many fatal errors have happened in France in the practice of phyſic, from the reſemblance of ſalt of tartar to cream of tartar? Can there be a neceſſity of expoſing the impropriety, the nonſenſe of ſuch expreſſions as, *oil of tartar* by the bell, *fixed nitre extemporaneous alkali*, *marine alkali*, *ſoap-lies*, *ſpirits of hartſhorn*, &c. &c? It is not aſtoniſhing that to avoid ſuch abſurd appellations, ſome modern chymiſts have preferred the circumlocutions of pure vegetable fixed alkali, pure mineral fixed alkali, and pure volatile alkali. Such was the cuſtom of the celebrated Profeſſor of Upſal; but as ſoon as it was propoſed to give a particular name to each of the alkalies, which without the aſſiſtance of any epithet, ſhould repreſent it in its ſtate of cauſticity, that is to ſay, totally deprived of carbonic acid, he perceived the advantages which neceſſarily would reſult from ſuch a method, and eagerly adopted the denominations of *potaſſinum*, *natrum* and *ammoniacum*, in his Latin diſſertation on the claſſes of the foſſils.

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(1) *Diſſertatio de ſyſtemate foſſilium naturale*, §. 235. Memoirs of the Royal Society of Upſal, Vol. IV. See alſo Kirwan's mineralogy.

We likewiſe here have had in view the perfectioning of the language of chymiſtry, by putting the names of the three alkalies in the feminine gender, that they ſhould be of the ſame gender with the earths to which they bear a greater analogy than to the metals. Therefore the names of the three alkalies in their moſt ſimple ſtate, will be in the French language, *la potaſſe*, *la ſoude*, and *l'ammoniaque*, that is, potaſh, ſoda, and ammoniac.

The word *potaſh* has been uſed to ſignify vegetable fixed alkali obtained by the waſhing of aſhes; we propoſe only to annex to this expreſſion the idea of purity and cauſticity.

We have preferred the word *ſoda* to that of natrum, particularly becauſe it was more univerſally known; every chymiſt is acquainted with the words ſal ſodæ or the cryſtals of ſoda, and the ſubſtance to which we give the name of ſoda is preciſely that which conſtitutes the cryſtals of ſal ſodæ, excepting the carbonic acid which occaſions the cryſtalline form.

In fine, as to the word *ammoniac*, we only have expreſſed ſubſtantively what all former chymiſts have expreſſed by the epithet ammoniacal.

According to the ſyſtem of the nomenclature, the firſt column ſhould contain only ſimple ſubſtances, or ſuch as have not as yet been decompoſed, and therefore ammoniac ſhould not be admitted, becauſe it has been diſcovered to be a combination of azot and hydrogen. But we have thought it ſufficient to make this obſervation that the place which we aſſign to ammoniac ſhould not lead any one into error; and becauſe the chief deſign of the nomenclature was to aſſiſt the memory by ſyſtem and method, it could not admit of the ſeparation of ſubſtances which have ſo many properties in common, which act on ſo many occaſions in the ſame manner, which all perſons are accuſtomed to find placed together, and which appear more different at preſent perhaps becauſe we are more advanced in the analyſis of the one than of the two others.

As ammoniac enters into a great many combinations without being decompoſed, it became indiſpenſably neceſſary to indicate it by a ſingle word, to ſhun the embarraſſment and confuſion which muſt have been produced in the denominations of the ſur-compounds, by the repetition and enumeration of the conſtituent ſubſtances.

The ſame conſiderations engage us here to unite in an appendix, ſeveral other ſubſtances which are not more ſimple, of which we equally well know the elements, and the reduction of whoſe denominations to ſimple and preciſe names is not leſs important.

APPEN-

APPENDIX.

CONTAINING THE NOMENCLATURE OF SOME COMPOUND SUBSTANCES WHICH SOMETIMES COMBINE LIKE SIMPLE BODIES.

In our experiments on animal and vegetable ſubſtances, we frequently find both in the claſſes and in the different ſpecies, ſimilar principles which we always can know notwithſtanding their particular modifications, and which may be regarded as nature's chymical compoſitions. Such are *ſugar*, *mucus*, *gluten*, *ſtarch*, *reſin*, *extract*, *fecula* and the *oils*. It is evident on the firſt view of our nomenclature, that we have here done no more than adopted ſome denominations out of the number which are in uſe. We have divided the oils only into *fixed oils* and *volatile oils*, a diviſion which has appeared to agree better with their reſpective properties than the names of ſebaceous or groſs oils, and eſſential or ethereal oils.

We likewiſe preſerve the appellation of *ſoaps* for all the compoſitions of the fixed oils: after which generical name ſhould be mentioned, when neceſſary, the ſubſtance to which the oil is combined. Thus we ſhall ſay, *ſoap of potaſh*, *calcareous ſoap*, *ſoap of ſulphuric acid*, and *ſoap of lead*; but as a particular denomination is neceſſary for the ſaponaceous compoſitions of the volatile oils, we ſhall call them *ſaponuls*, and thus Starkey's ſoap becomes *ſaponul of potaſh*.

As to the ſubſtance to which the appellation of rector-ſpirit has ſo improperly been given, as it is eſſentially the principle of odor, we have beſtowed upon it the name of *aroma*, which requires no explanation as every perſon knows the ſignification of the word aromatic.

The produce of the ſpirituous or vinous fermentation doubtleſs may retain the appellation of *ſpirit of wine*; but this principle unites with the acids, becomes impregnated by the alkalies, diſſolves the reſins, and produces not only compoſitions, but alſo claſſes of compoſitions for which exact denominations are requiſite; that is to ſay, a generical name for each, followed by the name of the particular baſe, inſtead of ſuch improper and abſurd appellations as *dulcified ſpirit of ſalt*, *lily of Paracelſus*, *tincture of guayacum*, &c. The word *alcohol* appears to be the more proper for this intention, as the greater number of the ancient chymiſts have employed it in the ſame ſenſe, and to ſignify the moſt highly rectified ſpirit of wine; that is to ſay, in that ſtate of purity in which it ought to be conſidered when named without an epithet.

According to this method the dulcified ſpirit of ſalt becomes *muriatic alcohol*; the lily of Paracelſus, *alcohol of potaſh*; the offa Helmontii, *ammoniacal*

moniacal alcohol; the tincture of guayacum, *alcohol of guayacum*, &c.

When the combinations of alcohol with the acids are converted into ether, they may retain the name of *ether*, as the generical appellation for the productions of this particular claſs, always attended by a word to ſignify the acid which is employed. Thus we ſhall ſay, *nitric ether*, *acetic ether*, &c. and the ether of Frobenius will become *ſulphuric ether*.

We ſhall not here repeat the reaſons which have determined us to place at the concluſion of theſe memoirs the Latin tranſlation of the principal denominations adopted in our methodical nomenclature. We only have to intreat ſuch perſons as may be alarmed at this innovation, either for themſelves, or the intereſt of the ſcience, to examine with ſome attention the principles which we have eſtabliſhed, and which have directed us in all this proceeding. We do not heſitate to ſay, that they ſoon will be as convinced as ourſelves, and that the advantages which are preſented by our ſyſtem, both to render the learning of chymiſtry eaſy to thoſe who commence their ſtudies, and to facilitate the communication of ſcientific knowledge among ſuch as are truly chymiſts, moſt certainly deſerve the ſacrifice of a few habitual terms.

A MEMOIR.

TO EXPLAIN THE TABLE OF THE NOMENCLATURE.

By Mr. de FOURCROY.

AFTER having ſhewn in the two preceding memoirs the outlines of our methodical plan, and the general rules which we have obeyed in the execution of the work; we think it neceſſary to give an explication of the table which we preſent, ſufficiently diffuſive to convey a juſt idea of the conformity of the examples which we have given and the ſynopſis of the terms which we have propoſed. Mr. de Morveau already has cited the greater number of the general examples in the chymical nomenclature. But at preſent we are to behold it in another point of view; we are to point out the minutiæ of the plan, and in an order different from that of the former memoirs. If we ſhall appear to make any repetitions, they will be only ſuch as are indiſpenſable, and ſuch as will develope developе ſeveral new and important facts which have been the foundations of our work.

We ſhould firſt remark that our intention in forming this table, was not to give a nomenclature for all the chymical ſubſtances; but to ſelect in ſeveral claſſes of compounds, a conſiderable number of well choſen examples, ſo as to enable all perſons, by the aſſiſtance of a ſimple and eaſy ſtudy, to apply our method of naming to all the compoſitions known in the ſcience, or to ſuch as may be diſcovered in future. With this intention we have divided the table into ſix perpendicular columns, at the head of which are placed the titles indicating the ſtates of the ſubſtances whoſe names are ranged in the columns. Each column contains fifty-five ſpaces placed under one another. This number is determined by the number of the known un-decompounded ſubſtances, whoſe names are ranged through the whole length of the firſt column. The horizontal ſpaces correſponding, of the five other columns, contain the principal combinations of theſe ſimple ſubſtances, and conſequently ought to amount to the ſame number.

We ſhall here proceed in order through the different columns, and take notice of the principal contents.

FIRST COLUMN.

The firſt column, which is marked with the Roman figure I. is entitled *ſubſtances not decompounded*. We ſhould here recollect that theſe ſubſtances appear to us ſimple only becauſe we have not as yet been able to analyze them; all the experiments which have been made within theſe ten years paſt, ſhew that theſe ſubſtances cannot be ſeparated into more ſimple bodies, and that we cannot re-produce them by artificial compoſitions. Theſe ſubſtances amount, as we have ſaid, to fifty-five; before the horizontal ſpaces in which they are contained, the numbers in Arabic cyphers are placed to indicate the particular place of each ſubſtance and the correſponding compoſitions in the other columns. In this manner the horizontal lines are continued from the firſt column to the ſixth, and all the horizontal ſpaces of each column are indicated by the ſame figure.

The fifty-five ſimple ſubſtances in the firſt column are divided into five claſſes, according to the comparative nature of each. The firſt diviſion contains four ſubſtances, which appear to approach the neareſt to the idea that has been formed of elements, and which are the chief principles in combinations; theſe are (1 ſpace) *light*, (2 ſpace) *caloric*, which has been called the matter of heat, (3 ſpace) *oxygen*, or that part of vital air that fixes itſelf in the bodies which burn, thereby augmenting their weight, and changing their nature, and whoſe principal property is to form the acids, from which property we have derived its appellation, (4 ſpace) *hydrogen* or the baſe of the elaſtic fluid called inflammable gas, a ſubſtance which exiſts in its ſtate of ſolidity in ice, becauſe it is one of the principles of water. Theſe four firſt ſimple bodies are contained in a crotchet by themſelves.

The ſecond claſs of non-decompoſed ſubſtances of the firſt column, contains twenty-ſix different bodies, all of which poſſeſs the property of becoming acid by their uniting with oxygen; and which, on account of this common property we expreſs by the words *acidifiable baſes*. Among theſe twenty-ſix ſubſtances, there are only four which can be obtained in a ſimple ſtate and uncombined; ſuch are (5 ſpace) *azot* or *nitric radical*, or the ſolid baſe of the atmoſpherical moſet, at preſent well known by the chymiſts; (6 ſpace) pure charcoal, *carbon* or *carbonic radical*, (7 ſpace) *ſulphur* or *ſulphuric radical*, and (8 ſpace) *phoſphorus* or *phoſphoric radical*. The twenty-two others are known only in their combinations with oxygen, and in their acid ſtate; but to give more perſpicuity and extent to the ſcience, we have in idea ſeparated them from the oxygen, and we ſuppoſe them in that ſtate of purity to which probably they will one day be reduced by art. They are all expreſſed by the names of their acids with with uniform terminations which are followed by the generical term *radical*. For example (9 ſpace) *muriatic radical*, (10 ſpace) *boracic radical*, (11 ſpace) *fluoric radical*, (12 ſpace) *ſuccinic radical*, (13 ſpace) *acetic radical*, (14 ſpace) *tartaric radical*, (15 ſpace) *pyro-tartaric radical*, (16 ſpace) *oxalic radical*, (17 ſpace) *gallic radical*, (18 ſpace) *citric radical*, (19 ſpace) *malic radical*, (20 ſpace) *benzoic radical*, (21 ſpace) *pyro-lignic radical*, (22 ſpace) *pyro-mucic radical*, (23 ſpace) *camphoric radical*, (24 ſpace) *lactic radical*, (25 ſpace) *ſaccholactic radical*, (26 ſpace) *formic radical*, (27 ſpace) *pruſſic radical*, (28 ſpace) *ſebacic radical*, (29 ſpace) *lithic radical*, (30 ſpace) *bombic radical*.

The third claſs of theſe ſubſtances which are not decompoſed of the firſt column, includes the metallic ſubſtances, which are to the number of 17, from the 31 ſpace incluſively to the 47. All of them have names by which they have been known to the preſent time; the three firſt are capable of paſſing to the acid ſtate, and on account of this property ſeem connected with the acidifiable baſes which precede them.

In the fourth claſs of the ſubſtances which are not decompoſed are placed the earths, (48 ſpace) *ſilice*, (49 ſpace) *alumine*, (50 ſpace) *barytes*, (51 ſpace)

ſpace) *lime*, and (52 ſpace) *magneſia*. We have not as yet been able to decompoſe theſe five earths, and in the preſent ſtate of the ſcience, they muſt be looked upon as ſimple ſubſtances.

In fine, the fifth claſs of ſubſtances, which are not decompoſed, contains the three alkalies, (53 ſpace) *potaſh*, (54 ſpace) *ſoda*, and (55 ſpace) *ammoniac*. Although this laſt has been decompoſed by Meſſrs. Bergman and Scheele, and although Mr. Bertholet has determined with preciſion the nature and proportion of its principles, we have thought proper to place it after the fixed alkalies, the component ſubſtances of which we hope ſoon to be able to ſhew, not to interrupt the order and relation of theſe ſubſtances, which in many reſpects appear as indecompoſable ſubſtances in chymiſtry.

The firſt column, whoſe diviſions we have explained, is longitudinally ſplit into two parts like all the other columns: in one part containing the new names; and in the other, the ancient names, which for the ſake of greater diſtinction are printed in italic characters.

COLUMN II.

The ſecond column has for its title, *converted into the ſtate of gas by caloric*; to this title ſhould be joined that of the preceding column, and be read in this manner, *ſubſtances not decompounded converted into the ſtate of gas by caloric.* From which it will appear that the ſecond column is intended to preſent the permanent aeriform ſtate which many of the ſimple ſubſtances expreſſed in the firſt column are capable of undergoing; in this column there are only four elaſtic fluids whoſe names are derived like all the words in the other columns, from thoſe of the ſubſtances which are not decompoſed, and become plain and conſpicuous by the addition of the word *gas* which follows the primitive words. Thus we find in the (3 ſpace) *oxygen gas* or vital air, (4 ſpace) *hydrogen gas*, (5 ſpace) *azotic gas*, and (55 ſpace) *ammoniacal gas*, correſponding to which are placed the ancient appellations.

COLUMN III.

At the head of the third column is written *combined with oxygen*. The title of the firſt column is alſo here to be underſtood; and it is evident that *ſubſtances*

ſubſtances not decompounded, are thoſe which are meant. This column is one of the moſt crowded, becauſe the greater number of the ſubſtances of the firſt column can be combined with oxygen. On beholding the order and the terms which are there expoſed, it is evident that theſe names are each compoſed of two words, expreſſing compoſitions of two ſubſtances. The firſt of theſe words is the generical name of the acid, which indicates the ſaline property given by the oxygen; the ſecond ſpecifies each acid, and is almoſt always that of the radical indicated in the firſt column. The fifth ſpace of this column preſents the union of *azot* or *nitric radical* with oxygen, and from the union of theſe two ſubſtances, according to their proportions, three well known compoſitions are produced; either the azot contains the ſmalleſt quantity poſſible of oxygen, and then forms the *baſe of the nitrous gas*; or it is ſaturated with oxygen, and conſtitutes the *nitric acid*; or it contains leſs oxygen than the latter, but more than the nitrous gas, and forms *nitrous acid.* Thus it is plain that by only changing the termination of the ſame word we have expreſſed the three different ſtates of the ſame combination. It is abſolutely the ſame in reſpect to (7 ſpace) *ſulphuric acid,* (8 ſpace) *phoſphoric acid,* and (13 ſpace) *acetic acid*; each of which can exiſt in two ſtates of combination with oxygen, according to the quantity contained in the radical or acidifiable baſes of each. When theſe baſes are completely ſaturated, the *ſulphuric*, *acetic*, and *phoſphoric* acids are the reſult. When theſe baſes are not ſaturated, and when they are in exceſs of proportion to the oxygen, we denominate them *ſulphureous*, *acetous*, and *phoſphorous* acids, as may be ſeen in the ſpaces of which we have already ſpoken. Thus this method of termination ſerves to expreſs the ſtate of the acids, like the names already employed of vitriolic and ſulphureous, and we thereby inſtitute a rule which is as general as it is ſimple for all the other acids which are in either the one or the other of theſe ſtates. After this it will not be difficult to underſtand the names of (6 ſpace) *carbonic acid*, and (10 ſpace) *boracic acid*, and of all theſe which preſent only a ſingle ſtate where the acidifiable baſe is ſaturated with oxygen. By the ſame rule of denomination, it is to be underſtood that each acid which is placed by itſelf in a ſpace and whoſe name terminates in ous, has an exceſs of acidifiable matter; ſuch are (14 ſpace) *tartareous* acid, (15 ſpace) *pyro-tartareous acid*, (21 ſpace) *pyro-ligneous acid*, and (22 ſpace) *pyro mucous acid*. The (9 ſpace) *muriatic acid* is in a ſtate very different from all the others; beſides its acid combination or ſaturation with oxygen, it can imbibe an exceſs of that principle, and thereby acquire moſt ſingular properties. To diſtinguiſh it in this ſtate we call it (9 ſpace) *oxygenated muriatic acid*, and this firſt ſimple name whoſe meaning is preciſely determined, can be given regularly to ſuch other acids as will be diſcovered to poſſeſs the property of receiving an exceſs of oxygen.

The inferior ſpaces of this third column from the 31 incluſively to the 47, contain the nomenclature of another ſyſtem of bodies. Here the word *oxyd* begins the compound denomination. The reaſons which have engaged us to ſubſtitute this name for that of metallic calx have been given in the preceding memoir. It is eaſy to perceive that without expreſſing the ſaline property like the word *acid*, it nevertheleſs ſignifies, as well as this laſt, a combination of oxygen; beſides we ſhall have the advantage of being able to employ this denomination for all the ſubſtances capable of uniting with oxygen, and which in that combination do not produce acids, becauſe either the quantity of oxygen is not ſufficiently abundant, or becauſe their baſes by nature are not capable of acidification. Thus, for example, the phoſphoric acid vitrified or deprived of a portion of its oxygen by the action of an intenſe fire, is a kind of *phoſphoric oxyd*; nitrous gas, which has no more the properties of an acid than the phoſphoric gas, becauſe it does not contain enough of oxygen, is likewiſe a true *nitrous oxyd*; thus hydrogen united to oxygen does not produce an acid, but this union conſtitutes *water*, which conſidered in this point of view may be called an *oxyd of hydrogen*.

Among the ſeventeen metallic oxyds contained in the ſpaces from the 31 to the 48, there are three which are eaſily changed into the acid ſtate; it is only for want of oxygen that the oxyds of (31 ſpace) *arſenic*, of (32 ſpace) *molybden*, and of (33 ſpace) *tunſtein*, are not abſolutely acid. A greater proportion of this acidifying principle produces the (31 ſpace) *arſenic acid*, (32 ſpace) *molybdic acid*, and (33 ſpace) *tunſtic acid*. It has been explained in the preceding memoir how the epithets taken from the color, or from the methods of preparation, are uſed to diſtinguiſh the different oxyds of the ſame metal, as for example (38 ſpace) *the oxyds of antimony*, (42 ſpace) *the oxyds of lead*, (44 ſpace) *the oxyds of mercury*, which afford the greateſt number of examples of this diverſity.

COLUMN IV.

THE fourth column, whoſe title is *gazeous oxygenated*, that is to ſay, ſimple ſubſtances combined at the ſame time with oxygen, and with a ſufficient quantity of caloric to convert them into the ſtate of permanent gaſes, under the preſſure and in the ordinary temperature of the atmoſphere, contains only ſix known ſubſtances in that ſtate; ſuch are (5 ſpace) *nitrous gas* and *nitrous acid gas*, (6 ſpace) *carbonic acid gas*, (7 ſpace) *ſulphureous acid gas*, (9 ſpace) *muriatic acid gas*, and *oxygenated muriatic acid gas*, and (11 ſpace) *fluoric acid gas*. As no other of theſe oxygenated ſubſtances to the preſent time could be converted into the ſtate of gas by caloric, the greater number of the ſpaces of this fourth column are empty, of which circumſtance we have taken the advantage by placing in it ſeveral combinations of metallic oxyds or oxygenated metals, with different ſubſtances. This column therefore is interſected at about half its length, and takes the new title of *metallic oxyds with various baſes*. The 31, 36, 37, 38, 39, 40, 41, 42, 43, 44, and 45 ſpaces indicate the combinations of the metallic oxyds with ſulphur and with the alkalies; the former bearing the epithet of *ſulphurated oxyds*, of arſenic, and of lead; the ſecond that of *alkaline metallic oxyds*. When any of theſe combinations vary in the proportion of their component principles, and conſequently in their properties, we diſtinguiſh them after the manner of ſimple oxyds, by ſecondary epithets taken from their color; thus we ſay (38 ſpace) *grey*, *red*, or *orange ſulphurated oxyd of antimony*, &c.

COLUMN V.

If the fifth column, which contains ſimple ſubſtances *oxygenated with baſes*, or the neutral ſalts in general, offers a greater number of names than the preceding; it is becauſe it appeared neceſſary to us to give here a greater number of examples, to ſhew the advantage of this methodical nomenclature over the ancient denominations, the greater number of which although they expreſſed analogical compoſitions, were nevertheleſs perfectly diſſimilar to one another.

At the firſt view of the ſpaces of this column, it is evident that there is an uniformity in the terminations of all the names contained therein, which uniformity of termination in our nomenclature is always uſed to expreſs analogical compoſitions. It is eaſy to perceive that this regular gradation muſt ſingularly facilitate the ſtudy of the ſcience, and diffuſe a glow of light on all the works of chymiſtry. The bodies which are named in this fifth column are all compoſitions of three ſubſtances, of acidifiable baſes, of the acidifying principle or oxygen, and of the terreſtrial, alkaline, and metallic baſes; yet their natures are indicated by two words only, becauſe the firſt which is derived from that of the combination of oxygen, or the acid, includes the expreſſion of that union, and the ſecond indicates the baſe with which the acid is ſaturated. All the names of theſe compoſitions are terminated in *at*, when they contain acids completely ſaturated with oxygen; and their termination is in *ite* when the acids are deprived of a certain quantity of their oxygen. On conſidering the ſpaces of this column from the fifth to the twenty-fourth, it appears that we have inſerted as many examples, in proportion as the acids to which they correſpond or whoſe ſaline compoſitions they contain, are more known and more employed (1). Theſe ſpaces preſent ſome principal varieties in the nomenclature.

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(1) The neutral ſalts are at preſent very numerous; there are 29 known acids, each of which can be ſaturated by four ſoluble earths, three alkalies, and fourteen non-acidifiable metallic oxyds, (for it appears that the acidifiable oxyds, as thoſe of arſenic, molybden and tunſtein, cannot neutralize the mineral acids) which produce ſix hundred and nine ſorts of compound ſalts. If to this we add that five of theſe acids, the nitric, ſulphuric, muriatic, acetic and phoſphoric, can alſo combine in two different ſtates, to baſes capable of being neutralized, and that ſeveral acids, as the ſulphuric, the tartareous, the oxalic, and the arſenic, can ſaturate themſelves with different quantities of their baſes, and form what we call the acidulous ſalts, of which eight very diſtinct ſpecies are already very well known *, it will be perceived that the number of theſe neutral ſalts may amount to ſeven hundred and twenty-two different ſorts, the denominations of which can be methodically formed, according to the forty-ſix or forty-eight examples of the ſalts which are preſented in the table.

* Such are *acidulous ſulphat of potaſh* or vitriolated tartar with an

1. The greater number of theſe ſpaces contain denominations of ſalts, terminated in at, as (6 ſpace) *carbonats*, (11 ſpace) *fluats*, (12 ſpace) *ſuccinats*, (17 ſpace) *gallats*, (18 ſpace) *citrats*, (19 ſpace) *malats*, (20 ſpace) *benzoats*, (23 ſpace) *camphorats*, (24 ſpace) *lactats*, (25 ſpace) *ſaccholactats*, (26 ſpace) *formiats*, (27 ſpace) *pruſſiats*, (28 ſpace) *ſebats*, (29 ſpace) *lithiats*, (30 ſpace) *bombiats*, (31 ſpace) *arſeniats*, (32 ſpace) *molybdats*, and (33 ſpace) *tunſtats*. Theſe terminations, ſimilar to one another and peculiar to theſe eighteen genera of neutral ſalts, ſhew that the acids which compoſe them are known only in their complete ſtate of ſaturation with oxygen. In like manner all the acids in the third column uniformly have their terminations in *ic*, according to the rules of the nomenclature.

2. In the 14, 15, 21, and 22 ſpaces of the fifth column there are only *tartrites*, *pyro-tartrites*, *pyro-lignites*, and *pyro-mucites*, whoſe uniform terminations indicate acids with exceſs of acidifiable baſes, and that they contain tartareous, pyro-tartareous, pyro-ligneous, and pyro-mucous acids.

3. In this ſame column is a third claſs of ſpaces which contains neutral ſalts, the names of which alſo

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exceſs of acid, the *acidulous tartrites* or *oxalats* of potaſh, of ſoda, and of ammoniac, or the creams of tartar with ſalts of ſorrel artificially made with pure tartareous and oxalic acids united to a ſmall proportion of alkaline baſe, and the *acidulous arſeniat of potaſh*, or Macquer's arſenical neutral ſalt.

alſo have the two different terminations which we have mentioned, ſuch are the ſpaces where we ſee the (5 ſpace) *nitrats* and *nitrites*, (7 ſpace) *ſulphats* and *ſulphites*, (8 ſpace) *phoſphats* and *phoſphites*, and (13 ſpace) *acetats* and *acetites*. Theſe two terminations in each of the ſpaces ſufficiently indicate, after what we have already ſaid, that the ſalts to which we have given them are compoſed of acids in two proportions of union with oxygen, always recollecting that the acids terminated in *ic* produce neutral ſalts terminated in *at* and that thoſe with terminations in *ous*, form neutral ſalts whoſe names are terminated in *ite*.

4. In ſeveral ſpaces of this column we have given ſome examples of neutral ſalts different from thoſe of the two claſſes which we have diſtinguiſhed; thus in the 9th ſpace we have given the appellation of *oxygenated muriat of potaſh* to the combination of oxygenated muriatic acid and potaſh, in which Mr. Berthollet has diſcovered the property of detonating on burning charcoal. We have likewiſe expreſſed in other diviſions of the ſame column, the ſaline combinations in which the acids predominate, by adding to the methodical nomenclature of theſe ſalts the epithet *acidulous*, as (14 ſpace) *acidulous tartrite of potaſh*, and (16 ſpace) *acidulous oxalat of potaſh*. In fine, we have expreſſed by the word *ſur-ſaturated* the neutral ſalts in which the baſes predominate, as

(8 ſpace) *phoſphat ſur-ſaturated with ſoda*, and (10 ſpace) *borax, or borat ſur-ſaturated with ſoda.*

A moment's reflection on the rigorous and etimological method which we have purſued in the formation of the denominations for the neutral ſalts, and of the little conformity of the names to one another which were given in the ancient nomenclature to ſalts of ſimilar natures; the reaſon muſt appear why this column preſents more variety and alterations than any of the others, although in reality there is nothing new more than two terminations modified of words already known.

COLUMN VI.

The ſixth and laſt column of this table, which contains the names of ſimple ſubſtances combined in their natural ſtate, and as their title denotes, without being oxygenated or acidified, is one of the ſhorteſt, and contains very few compoſitions. The inferior ſpaces from the 31 to the 48, contain the combinations of metals with one another, for which we preſerve the names of alloy and amalgam, which have been a long time in uſe. Under theſe we find only three which offer new denominations founded upon the ſame principles as the preceding; as (6 ſpace) *carburet of iron*, expreſſing the combination of charcoal and iron, vulgarly called plumbago, (7 ſpace) *metallic ſulphurets* or the native combinations of ſulphur with the metals, *alkaline ſulphurets* or the combinations of ſulphur with the alkalies, and *ſulphurated hydrogen gas* or the ſolution of ſulphur in hydrogen gas. In fine we expreſs by the generical name of (8 ſpace) *metallic phoſphurets* the native compoſitions of phoſphorus and metals; likewiſe we ſubſtitute for the word ſyderite the appellation *phoſphuret of iron*, which expreſſes in the cleareſt manner the union of phoſphorus with iron; and we are enabled by theſe three comparative words, *carburet*, *ſulphuret*, and *phoſphuret*, which differ only in termination from words very well known, to give an exact idea of analogical compoſitions, and to diſtinguiſh them from all other compound ſubſtances.

Under thoſe ſix columns we have placed a nomenclature of the principal ſubſtances in the vegetable kingdom. In this part of the table we have choſen from among the ancient names ſuch as from their conciſeſineſs and perſpicuity appeared moſt worthy of our attention.

Such is the method we have followed in the ſynopſis of chymical denominations. An abſtruſe and laborious ſtudy is by no means neceſſary to acquire a knowledge of the new nomenclature; and it is evident that we have created but a very few abſolutely new words, except ſuch as were indiſpenſably neceſſary to indicate ſubſtances which were unknown before, ſuch as the lately diſcovered acids. In following the order of the ſubſtances denominated in the firſt column, from whence all the other names are derived, it will appear that we have not made any new words but oxygen, hydrogen, and azot. As to the words caloric*, carbon, ſilice, and ammoniac, they offer like all their derivatives in the ſucceeding columns only inconſiderable variations of names already known and much in uſe. Thus it is almoſt totally by new terminations that our nomenclature differs from the former; and if greater facility in ſtudy and more perſpicuity in expreſſion reſult from theſe innovations, as the trials which have been made this year (1787) in the public lectures at the Jardin du Roi and at the Lyceum, give us reaſon to expect, the reformation which we propoſe, founded upon the moſt ſimple method, muſt certainly be favourable to the future advancement of the ſcience.

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* The French word for heat is *chaleur*.

BLE OF THE CHYMICAL

Propoſed by Meſſrs. De Morveau, Lavoiſier, B[illegible]holet,

I. TANCES NOT DECOMPOUNDED.		II. CONVERTED INTO THE STATE OF GAS BY CALORIC.		III. COMBINED WITH OXYGEN.		GAZEOU
NAMES.	ANCIENT NAMES.	*NEW NAMES.*	ANCIENT NAMES.	*NEW NAMES.*	ANCIENT NAMES.	*NEW NAM*
	Latent heat, or the matter of heat.					
	Baſe of vital air.	Oxygen-gas. *N. B.* It appears that light aſſiſts to change it into the ſtate of gas.	*Dephlogiſticated air*, or *vital air.*			
	Baſe of inflammable gas.	Hydrogen gas.	*Inflammable gas.*	Water.	*Water.*	
tric radical.	*Baſe of phlogiſticated air, or of the atmoſpherical mofet.*	Azotic gas.	*Phlogiſticated air*, or *atmoſpherical mofet.*	Baſe of nitrous gas. Nitric acid. *And with exceſs of azot,* Nitrous acid.	*Baſe of nitrous gas.* *White nitrous acid.* *Smoking nitrous acid.*	Nitrous gas. Nitrous acid gas.
r Carbonic radi-	*Pure charcoal.*			Carbonic acid.	*Fixed air*, or *cretaceous acid.*	Carbonic acid gas.
r Sulphuric ra-				Sulphuric acid. *And with leſs oxygen,* Sulphureous acid.	*Vitriolic acid.* *Sulphureous acid.*	Sulphureous acid gas
y or Phoſphoric				Phoſphoric acid. *And with leſs oxygen,* Phoſphorous acid.	*Phoſphoric acid.* *Smoking*, or *volatile phoſphoric acid.*	
[illegible]				Muriatic acid. *And with exceſs of oxygen,* Oxygenated muriatic acid.	*Marine acid.* *Dephlogiſticated marine aci*	Muriatic acid gas. Oxygenated muriati gas.
[illegible]				Boracic acid.	*Sedative ſalt.*	
				Fluoric acid.	*Spathic acid.*	Fluoric acid gas.
				Succinic acid.	*Volatile ſalt of amber.*	
[illegible]				Acetous acid. *And with more oxygen,* Acetic acid.	*Diſtilled vinegar.* *Radical vinegar.*	
				Tartareous acid.		
				Pyro-tartareous acid.	*Empyreumatic tartareous acid, or ſpirit of tartar.*	
				Oxalic acid.	*Saccharine acid.*	
				Gallic acid.	*Aſtringent principle.*	
				Citric acid.	*Lemon-juice.*	
				Malic acid.	*Acid of apples.*	
				Benzoic acid.	*Flowers of benzoin.*	

L NOMENCLATURE.

let, and De Fourcroy, in May, 1787.

IV.		V.		VI.		
AZEOUS OXYGENATED.		OXYGENATED WITH BASES.		COMBINED WITHOUT BEING CONVERTED INTO THE ACID STATE.		
NAMES.	ANCIENT NAMES.	*NEW NAMES.*	ANCIENT NAMES.	*NEW NAMES.*	ANCIENT NAMES.	
						1
						2
						3
s.		Nitrat of potaſh. Nitrat of ſoda, &c.	*Common nitre.* *Cubic nitre.*			4
id gas.		Nitrite of potaſh.				5
cid gas.	*Fixed air, mephitic air.*	Carbonat { of lime. of potaſh, &c. of iron.	*Chalk.* *Aerial alkalies.* *Ruſt of iron.*	Carburet of Iron.	*Plumbago.*	6
us acid gas.	*Sulphureous acid gas.*	Sulphat { of potaſh. of ſoda. of lime. of alumine. of barytes. of iron, &c. Sulphite of potaſh, &c.	*Vitriolated tartar.* *Glauber's ſalt.* *Selenite.* *Alum.* *Heavy ſpath.* *Vitriol of iron.* *Stahl's ſulphureous ſalt.*	Sulphuret { of iron. of antimony. of lead, &c. Sulphurated hydrogen gas. Sulphuret of potaſh. } Sulphuret of ſoda, &c. } Alkaline ſulphurets containing metals. Alkaline ſulphurets containing charcoal.	*Factitious pyrites of iron.* *Antimony.* *Hepatic gas.* *Alkaline livers of ſulphur.* *Metallic liver of ſulphur.* *Liver of ſulphur containing charcoal.*	7
		Phoſphat { of ſoda. of lime, &c. Phoſphat ſur-ſaturated with ſoda. Phoſphite of potaſh, &c.	*Phoſphoric ſalt with natron for baſe.* *Earth of bones.* *Haupt's pearly ſalt.*	Phoſphorized hydrogen gas. Phoſphuret of iron.	*Phoſphoric gas.* *Syderite.*	8
cid gas. d muriatic acid	*Marine acid gas.* *Dephlogiſticated marine acid gas.*	Muriat { of potaſh. of ſoda. of lime, &c. of ammoniac. Oxygenated muriat of ſoda, &c.	*Sylvius's febrifuge ſalt.* *Sea-ſalt.* *Calcareous ſea-ſalt.* *Sal ammoniac.*			9
		Borat ſur-ſaturated with ſoda, or borax. Borat of ſoda, &c. *the ſoda ſaturated with acid.*	*Common borax.*			10
d gas.	*Spathic gas.*	Fluat of lime, &c.	*Fluor ſpath.*			11
		Succinat of ſoda, &c.				12
		Acetite { of potaſh. of ſoda. of lime. of ammoniac. of lead. of copper. Acetat of ſoda, &c.	*Foliated earth of tartar.* *Mineral foliated earth.* *Calcareous acetous ſalt.* *Mindererus's ſpirit.* *Sugar of lead.* *Verdegriſe.*			13
		Acidulous tartrite of potaſh. Tartrite of potaſh. Tartrite of ſoda, &c.	*Cream of tartar.* *Vegetable ſalt.* *Salt of Seignette.*			14
		Pyro-tartrite of lime. Pyro-tartrite of iron, &c.				
		Acidulous oxalat of potaſh. Oxalat of lime. of ſoda, &c	*Salt of ſorrel.*			
		Gallat { of ſoda. of magneſia. of iron.				
		Citrat of potaſh. Citrat of lead, &c.	*Earth foliated with lemon-juice.*			
		Malat of lime, &c.				
		Aluminous benzoat. Benzoat of iron, &c.				

			Citric acid.	*Lemon-juice.*	
			Malic acid.	*Acid of apples.*	
			Benzoic acid.	*Flowers of benzoin.*	
			Pyro-ligneous acid.	*Spirit of box.*	
			Pyro-mucous acid.	*Spirit of honey, of ſugar, &c.*	
			Camphoric acid.		
			Lactic acid.	*Acid of milk.*	
			Saccho-lactic acid.	*Acid of the ſugar of milk.*	
			Formic acid.	*Acid of ants.*	
			Pruſſic acid.	*Coloring matter of Pruſſian blue.*	
			Sebacic acid.	*Acid of fat.*	
			Lithic acid.	*Acid of the ſtone of the bladd.*	
			Bombic acid.	*Acid of ſilk worms.*	
					OXYDS WITH
Regulus of arſenic.			Oxyd of arſenic. *And with more oxygen,* Arſenic acid.	*White arſenic, or calx of arſenic.* *Arſenical acid.*	Yellow } ſulphurated Red } of arſeni Arſenical oxyd of po
			Oxyd of molybden. Molybdic acid.	*Calx of molybden.*	Sulphuret of molybd
			Oxyd of tunſtein. Tunſtic acid.	*Yellow calx of tunſtein, or tungſtein.*	
Regulus of manganeſe.			White Black } Oxyd of manganeſe. Vitreous	*Manganeſe.*	
			Oxyd of nickel.	*Calx of nickel.*	
Regulus of cobalt.			Grey oxyd of cobalt. Vitreous oxyd of cobalt.	*Calx of cobalt.*	Alkaline cobaltic oxy
			White Yellow } Oxyd of biſmuth Vitreous	*Magiſtery of biſmuth.* *Yellow calx of biſmuth.* *Glaſs of biſmuth.*	Sulphurated oxyd o muth.
Regulus of antimony.			White oxyd of antimony { by the nitrous acid. by the muriatic acid. White ſublimated oxyd of antimony. Vitreous oxyd of antimony.	*Diaphoretic antimony.* *Powder of algareth.* *Flowers or ſnow of antimony.* *Glaſs of regulus of antimony.*	Grey Red } ſulphurate Orange } of antimo Vitreous Alkaline oxyd of anti
			Oxyd of zink. Sublimated oxyd of zink.	*Calx of zink.* *Flowers of zink. Pompholix, &c.*	Sulphurated oxyd of
			Black oxyd of iron. Red oxyd of iron.	*Ethiops of iron.* *Aſtringent ſaffron of Mars.*	Sulphurated oxyd of
			White oxyd of tin.	*Calx of tin.*	Yellow ſulphur. oxyd
			White oxyd of lead. Yellow oxyd of lead. Red oxyd of lead. Vitreous oxyd of lead.	*Ceruſſe, or white-lead.* *Maſſicot.* *Minium.* *Litharge.*	Sulphurated oxyd of
			Red oxyd of copper. Green oxyd of copper. Blue oxyd of copper.	*Brown calx of copper.* *Green calx of copper, or verdegriſe.* *Mountain blue.*	Ammoniacal oxyd of cop per.
			Blackiſh Yellow } Mercurial oxyd. Red	*Ethiops* per ſe. *Turbith mineral.* *Precipitate* per ſe.	Black } ſulphurated o Red } mercury.
			Oxyd of ſilver.	*Calx of ſilver.*	Sulphurated oxyd of
			Oxyd of platina.	*Calx of platina.*	
			Oxyd of gold.	*Calx of gold.*	
[illegible] earth, quartz, &c.					
Argillaceous earth, or earth of alum.					
Barytes, heavy earth.					
Calcareous earth.					
Vegetable fixed alkali of tartar, &c.					
Mineral alkali. Marine alkali. Natron.					
[illegible] or caustic volatile alkali.	*Ammoniacal gas.*	*Alkaline gas.*			

NAMES GIVEN TO SEVERAL MORE COMPOUND SUBSTANCES W

		⎩ of iron.				17
		Citrat of potaſh. Citrat of lead, &c.	*Earth foliated with lemon-juice.*			18
		Malat of lime, &c.				19
		Aluminous benzoat. Benzoat of iron, &c.				20
		Pyro-lignite of lime. Pyro-lignite of zink.				21
		Pyro-mucite of magneſia. Ammoniacal pyro-mucite, &c.				22
		Camphorat of ſoda, &c.				23
		Lactat of lime, &c.				24
		Saccholat of iron, &c.				25
		Ammoniacal formiat, &c.	*Spirit of magnanimity.*			26
		Pruſſiat of potaſh, &c. Pruſſiat of iron, &c.	*Phlogiſticated alkali, or Pruſſian alkali.* *Pruſſian blue.*			27
		Sebat of lime, &c.				28
		Lithiat of ſoda, &c.				29
		Bombiat of iron, &c.				30
S WITH DIFFERENT BASES.*						
ulphurated oxyd of arſenic. oxyd of potaſh.	*Orpiment.* *Realgar.* *Liver of arſenic.*	Arſeniat of potaſh, &c. Arſeniat of copper, &c.	*Macquer's arſenical neutral ſalt.*	Alloy of arſenic and tin.	*Arſeniated tin.*	31
of molybden.	*Molybden.*	Molybdat.		Alloy, &c.		32
		Calcareous tunſtat.	*Tungſten of the Swedes.*	Alloy, &c.		33
				Alloy of manganeſe and iron.		34
				Alloy of nickel, &c.		35
obaltic oxyds.	*Precipitates of cobalt re-diſſolved by alkalies.*			Alloy, &c.		36
d oxyd of biſ-	*Biſmuth precipitated by liver of ſulphur.*			Alloy, &c.		37
ſulphurated oxyd of antimony. xyd of antimony.	*Grey calx of antimony.* *Kermes mineral.* *Golden ſulphur of antimony.* *Glaſs and liver of antimony.*			Alloy, &c.		38
d oxyd of zink.	*Precipitate of zink by liver of ſulphur.*			Alloy, &c.		39
d oxyd of iron.				Alloy, &c.		40
hur. oxyd of tin.	*Aurum muſivum.*			Alloy, &c.		41
d oxyd of lead.				Alloy, &c.		42
al oxyd of cop-				Alloy, &c.		43
phurated oxyd of mercury.	*Ethiops mineral.* *Cinnabar.*			Alloy or amalgam of, &c.		44
d oxyd of ſilver.				Alloy, &c.		
				Alloy of platina and gold.		
				Alloy, &c.		

S WHICH COMBINE WITHOUT DECOMPOSITION.

INTRODUCTION

TO THE TWO SYNONYMA.

WE have thought proper to add to the general table of the methodical nomenclature, in which is delineated a ſketch of the ſyſtem which we have propoſed, the complete ſynonyma of all the names which have been uſed to expreſs the different preparations in chymiſtry; we here preſent thoſe ſynonyma in the form of two dictionaries. In the firſt dictionary the ancient names are ranged in alphabetical order, and oppoſite to them are placed their correſponſive new or adopted terms. By the aſſiſtance of this dictionary, it can be known not only what names we have given to the ſeveral chymical compoſitions; but alſo ſuch perſons as are not well acquainted with the greater part of the preparations, the ancient names of which are often very far from being expreſſive of their nature, will find on peruſing the new ſynonyma a definition pretty clear in the very names which compoſe the new nomenclature, capable of reminding them of the compoſition of each particular ſubſtance.

The ſecond dictionary is the reverſe of the former, and we think it will be found equally uſeful.

The new names are there preſented in alphabetical order, and are accompanied with all their ancient ſynonymous expreſſions. In this we have endeavored to form a compleat dictionary of ſynonyma, ſo as to diſembarraſs learners of ſuch difficulties as incumber ſeveral other ſciences, and particularly botany and mineralogy, in which the multitude of different names given to the ſame things, have produced a confuſion and obſcurity, which the labors of the moſt indefatigable men have not been able to do away to the preſent time.

We ſhew in this ſecond dictionary that the ſame ſubſtance has often received, eight, ten, or a dozen different names, that the greater number of theſe names had little or no relation to the things to which they had been given; and it could not not have happened otherwiſe in a ſcience, which the firſt authors endeavored to cover with a myſterious veil, and in the hiſtory of which different epochas can be traced, in which the moſt celebrated chymiſts have advanced only by inſenſible degrees to the exact knowledge of the compoſitions to which they had given names before they had known them. Yet to avoid prolixity and obſcurity, we have taken care not to revive here the names which were formerly given by the alchymiſts, and which being founded only upon chimerical and abſurd ideas, have happily been forgotten, ſince chymiſtry has kept pace with experimental phyſics.

Thus both the one and the other of theſe ſynonyma have their particular uſes. The firſt, which may ſerve as a moſt neceſſary table to all the works in chymiſtry publiſhed unto the preſent period, contains the methodical nomenclature adapted to each ancient word. In this as well as in that which follows, we have given the names only of ſuch ſimple or compound bodies as are uſed in chymiſtry, and we have not preſented there the terms which expreſs the chymical operations themſelves, becauſe we have not made any alteration in theſe laſt mentioned words. The ſecond dictionary is the more complete of the two, and contains a great many more words than the former, becauſe it preſents the denominations of ſeveral compoſitions due to the labor of the moderns, and which had no names at all ſome years ago. This nomenclature therefore may be looked upon in a manner as an inventory of all that we at preſent know in chymiſtry.

Both in the one and the other, in ſome parts, are to be found ſome ſynonymous words among the new denominations; we retain them, as well that we ſhould not forſake ſome expreſſions in general uſe, as that we ſhould leave to choice ſome differently terminated words, intended to diffuſe a pleaſing variety in diſcourſe, and to avoid what perhaps might otherwiſe have ſeemed a tedious monotony. Such are, for example, the terminations of the words which expreſs the neutral ſalts, which preſent the appellations of the baſes either as ſubſtantive nouns or as adjectives to the choice of the author. Some words alſo are to be found in ſeveral books of chymiſtry, of which we make no mention in our ſynonyma, becauſe they have been given to compoſitions the nature of which is not as yet exactly known; and it muſt be evident to every one who has a juſt idea of the rigorous manner in which we have proceeded, that it was impoſſible we could denominate ſubſtances not perfectly known.

We have added ſome definitions to many of the general and particular denominations, either when we have had ſome doubt of the compoſitions, or when we have ſpoken of newly diſcovered ſubſtances.

The ſecond dictionary, which contains the new appellations in alphabetical order, and their ancient ſynonyma, alſo gives the Latin verſion of the new denominations. We have followed the ſame rule in reſpect to the Latin names; the uniformity of termination, and the rules of the derivations being the two principles which have directed us in the work. It would have been incomplete if we had not offered to the learned of all nations, a method to expreſs themſelves in an uniform and intelligible manner. As the ſcience will acquire new light, proper appellations may eaſily be added according to the method which we have ſufficiently explained in the preceding memoirs.

◆

ANCIENT AND NEW

SYNONYMA,

IN ALPHABETICAL ORDER.

A.

Ancient Names.	***New Names.***
Acid acetous,	Acetous acid.
Acid aërial.	Carbonic acid.
Acid arsenical,	Arsenic acid.
Acid boracic.	Boracic acid.
Acid cretaceous.	Carbonic acid.
Acid lignic or of box.	Pyro-lignious acid.
Acid malusian.	Malic acid.
Acid marine.	Muriatic acid.
Acid marine dephlogisticated.	Oxygenated muriatic acid.
Acid mephitic.	Carbonic acid.
Acid of alum.	Sulphuric acid.
Acid of amber,	Succinic acid,
Acid of ants.	Formic acid,
Acid of apples.	Malic acid.
Acid of benzoin,	Benzoic acid.
Acid of borax.	Boracic acid.
Acid of chalk.	Carbonic acid.

Ancient Names.	*New Names.*
Acid of charcoal.	Carbonic acid.
Acid of ſat.	~~Sebacic acid.~~
Acid of galls.	Gallic acid.
Acid of galls alcoholiſed.	Gallic alcohol.
Acid of lemons.	Citric acid.
Acid of molybdena.	Molybdic acid.
Acid of muria.	Muriatic acid.
Acid of nitre.	Nitric acid.
Acid of nitre, white.	Nitric acid.
Acid of nitre deprived of its gas.	Nitric acid.
Acid of nitre, dephlogiſticated.	Nitric acid.
Acid of nitre, phlogiſticated.	Nitrous acid.
Acid of phoſphorus, dephlogiſticated.	Phoſphoric acid.
Acid of phoſphorus, phlogiſticated.	Phoſphorus acid.
Acid of ſalt, alcholiſed.	Muriatic alcohol.
Acid of ſea-ſalt.	Muriatic acid.
Acid of ſilk-worms.	Bombic acid.
Acid of ſpar or fluor.	Fluoric acid.
Acid of ſugar.	Oxalic acid.
Acid of ſulphur.	Sulphuric acid.
Acid of tungſtein or tungſten.	Tunſtic acid.
Acid of wolfram of Meſſrs. Delhuyar.	Tunſtic acid.
Acid ſaccharine.	Oxalic acid.
Acid ſaccholactic, or acid of the ſugar of milk.	Saccho-lactic acid.
Acid ſebaceous, or of fat.	Sebacic acid.
Acid ſedative, or narcotic, of Homberg.	Boracic acid.
Acid ſulphureous.	Sulphureous acid.
Acid ſyrupous.	Pyromucous acid.
Acid tartareous.	Tartareous acid.

Ancient Names.	*New Names.*
Acid vitriolic.	Sulphuric acid.
Acid vitriolic, phlogiſticated.	Sulphureous acid.
Acidum perlatum.	Saturated phoſphat of ſoda.
Acidum pingue.	Meyer's hypothetical principle.
Æther acetous.	Acetic ether
Æther marine.	Muriatic ether.
Æther nitrous.	Nitric ether.
Æther vitriolic.	Sulphuric ether.
Æthiops martial.	Black oxyd of iron.
Æthiops mineral.	Black ſulphurated oxyd of mercury.
Æthiops per ſe.	Blackiſh mercurial oxyd.
Affinities.	Chymical affinities or attractions.
Aggregation.	Aggregation.
Air alkaline.	Ammoniacal gas.
Air atmoſpherical or common air.	Atmoſpherical or common air.
Air dephlogiſticated, of Dr. Prieſtley.	Oxygen gas.
Air, dephlogiſticated marine acid.	Oxygenated muriatic acid gas.
Air factitious.	Carbonic acid gas.
Air fetid of ſulphur.	Sulphurated hydrogen gas.
Air fire, Scheele's.	Oxygen gas.
Air fixed, of Dr. Black.	Carbonic acid gas.
Air impure.	Azotic gas.
Air inflammable.	Hydrogen gas.
Air, marine acid.	Muriatic acid gas.
Air nitrous.	Nitrous gas.
Air phlogiſticated.	Azotic gas.
Air pure.	Oxygen gas.
Air ſolid of Hale's.	Carbonic acid gas.

Ancient Names.	*New Names.*
Air vitiated.	Azotic gas.
Air vital.	Oxygen gas.
Air vitriolic acid, of Dr. Prieſtley.	Sulphureous acid gas.
Alkaeſt.	The pretended univerſal ſolvent of the alchymiſts.
Alkaeſt of Reſpour.	Potaſh mixed with oxyd of zink
Alkaeſt of Van Helmont.	Carbonat of potaſh.
Alkalies	Alkalies.
Alkalies aërated.	Alkaline corbonats.
Alkalies cauſtic.	Alkalies.
Alkalies mild.	Alkaline corbonats.
Alkali fixed of tartar, cauſtic.	Potaſh.
Alkali fixed of tartar not cauſtic.	Carbonat of potaſh.
Alkali fixed vegetable.	Corbonat of potaſh.
Alkali foſſile.	Corbonat of ſoda.
Alkali marine cauſtic.	Soda.
Alkali marine not cauſtic.	Corbonat of ſoda.
Alkali mineral acetated.	Acetite of ſoda.
Alkali mineral aërated.	Corbonat of ſoda.
Alkali of Pruſſian blue.	Ferruginous pruſſiat of potaſh.
Alkali of urine.	Corbonat of ammoniac. Ammoniacal carbonat.
Alkali phlogiſticated.	Ferruginous pruſſiat of potaſh, not ſaturated.
Alkali vegetable acetated.	Acetite of potaſh.
Alkali vegetable aërated.	Carbonat of potaſh.
Alkali vegetable ſupertartariſed.	Acidulous tartrite of potaſh.
Alkali volatile acetated.	Ammoniacal acetite Acetite of ammoniac.
Alkali volatile aërated.	Ammoniacal carbonat. Carbonat of ammoniac.
Alkali volatile fluor.	Ammoniac.

Alkali

Ancient Names.	*New Names.*
Alkali volatile cauſtic.	Ammoniac.
Alkali volatile concrete.	Ammoniacal carbonat.
Alkali volatile mephiticated.	Carbonat of ammoniac.
Allay, or alloy of metals.	Alloy.
Allum.	Sulphat of alumine. Aluminous ſulphat.
Allum marine.	Muriat of alumine. Aluminous muriat.
Allum nitrous.	Nitrite of alumine. Aluminous nitrite.
Amalgam of biſmuth.	Amalgam of biſmuth.
Amalgam of copper.	Amalgam of copper.
Amalgam of gold.	Amalgam of gold.
Amalgam of lead.	Amalgam of lead.
Amalgam of ſilver.	Amalgam of ſilver.
Amalgam of tin.	Amalgam of tin.
Amalgam of zink.	Amalgam of zink.
Amber yellow.	Amber or ſuccinum.
Antimony crude.	Sulphuret of antimony.
Antimony diaphoretic.	White oxyd of antim. by nitre.
Antimony muriated.	Muriat of antimony.
Antimony ſupertartariſed.	Antimoniated tartrite of potaſh
Antimony ſulphur-caline.	Red ſulphurated oxyd of antim.
Antimony ſulphur-caline dealcaliſed.	Orange-colored ſulphurated oxyd of antimony.
Antimony vitriſied.	Vitreous ſulphurated oxyd of antimony.
Aqua fortis.	Common nitrous acid.
Aqua regia.	Nitro-muriatic acid.
Aqua ſtigia.	Nitro-muriatic acid by the ammoniacal muriat.
Aquila alba.	Mild ſublimated mercurial muriat.

Ancient Names.	*New Names.*
Arcanum corallinum.	Red oxyd of mercury by the nitric acid.
Arcanum duplicatum.	Sulphat of potaſh.
Argil pure or argilaceous earth.	Alumine.
Argil cretaceous.	Aluminous carbonat.
Argil ſpathic.	Aluminous fluat Fluat of alumine.
Arſenic, regulus of.	Arſenic.
Arſenic, white, calx of.	Oxyd of arſenic.
Arſenic red.	Red ſulphurated oxyd of arſenic
Arſeniate of potaſh.	Arſeniat of potaſh.
Attractions elective.	Elective attractions.
Azure of cobalt, or of the four fires.	Vitreous oxyd of cobalt and ſilice.

B.

Balſoms Buquet's.	Balſoms.
Balſom of ſulphur.	Sulphuret of volatile oil.
Barilla.	Carbonat of ſoda.
Barytes.	Barytes.
Barytes aërated.	Carbonat of barytes.
Barytes vitriolated.	Sulphat of barytes.
Barytes mephiticated.	Carbonat of barytes.
Baſe of vital air.	Oxygen.
Baſe of marine ſalt.	Soda.
Benzoin, or Benjamin.	Benzoin.
Bezoar mineral.	Oxyd of antimony.
Biſmuth.	Biſmuth.
Biſmuth muriated.	Muriat of biſmuth.
Bitumen.	Bitumen.
Black-lead.	Carburet of iron.
Blue Berlin.	Pruſſiat of iron.
Blue Pruſſian.	Pruſſiat of iron.

Ancient Names.	New Names.
Borax.	Borax of ſoda, or borat furſaturated with ſoda.
Borax ammoniacal.	Ammoniacal borat.
Borax argilaceous.	Aluminous borat.
Borax, barytic or ponderous.	Borat of barytes.
Borax calcareous.	Borat of lime. Calcareous borat.
Borax magneſian.	Magneſian borat. Borat of magneſia.
Borax martial.	Borat of iron.
Borax mercurial.	Borat of mercury.
Borax of antimony.	Borat of antimony.
Borax of zink.	Borat of zink.
Borax vegetable.	Borat of potaſh.
Butter of antimony.	Sublimated muriat of antimony
Butter of arſenic.	Sublimated muriat of arſenic.
Butter of biſmuth.	Sublimated muriat of biſmuth.
Butter of cobalt.	Sublimated muriat of cobalt.
Butter of copper.	Sublimated muriat of copper.
Butter of tin.	Sublimated muriat of tin.
Butter of tin, ſolid, of Mr. Beaumé.	Concrete muriat of tin.
Butter of zink.	Sublimated muriat of zink.
Braſs.	Braſs, alloy of copper and zink.

C.

Calces metallic.	Metallic oxyds.
Calomel.	Mild muriat of mercury levigated.
Calx of antimony vitrified.	Vitreous oxyd of antimony.
Camphor.	Camphor.
Camphorite ſalts.	Camphorats.
Cauſticum.	Meyer's hypothetical principle

Ancient Names.	*New Names.*
Cauſticum lunare.	Molten nitrat of ſilver.
Ceruſſe.	White oxyd of lead by the acetous acid, *mixed with carbonat of lime.*
Ceruſſe of antimony.	White oxyd of antimony by precipitation.
Chalk.	Chalk. Carbonat of lime. Calcareous carbonat.
Charcoal pure.	Carbon.
Cinnabar.	Sulphurated red oxyd of mercury.
Clay.	Clay, a mixture of alumine and ſilice.
Cobalt.	Cobalt.
Colcothar of vitriol.	Red oxyd of iron by the ſulphuric acid.
Copper.	Copper.
Copper acetated.	Acetat of copper.
Copperas green.	Sulphat of iron.
Copper ſuper-vitriolated.	Sulphat of copper.
	D.
Diamond.	Diamond.
Diana's tree.	Cryſtallized amalgam of ſilver.
	E.
Earth, acetated calcareous.	Calcareous acetite.
Earth, aërial ponderous.	Carbonat of barytes.
Earth animal.	Calcareous phoſphat.
Earth baſe of ponderous ſpar.	Barytes.
Earth calcareous.	Lime, or calcareous earth.
Earth, cryſtallizable foliated.	Acetite of ſoda.
Earth, foliated mercurial.	Acetite of mercury.

Ancient Names.	*New Names.*
Earth, foliated mineral.	Acetite of ſoda.
Earth of alum.	Alumine.
Earth of tartar, foliated.	Acetite of potaſh.
Earth magneſian.	Carbonat of magneſia.
Earth muriatic, of Kirwan.	Magneſia.
Earth ponderous.	Barytes.
Earth ſiliceous.	Siliceous earth or ſilice.
Emetic tartar.	Antimoniated tartrite of potaſh
Empyreal principle.	Oxygen gas.
Eſſences.	Volatile oils.
Extract.	Extract.
F.	
Fecula of vegetables.	Fecula.
Flowers, ammoniacal cupreous.	Sublimated ammoniacal muriat of copper.
Flowers argentine, of regulus of antimony.	Sublimated oxyd of antimony
Flowers metallic.	Sublimated metallic oxyds.
Flowers of arſenic.	Sublimated oxyd of arſenic.
Flowers of benzoin.	Sublimated benzoic acid.
Flowers of biſmuth.	Sublimated oxyd of biſmuth.
Flowers of ſulphur.	Sublimated ſulphur.
Flowers of tin.	Sublimated oxyd of tin.
Flowers of zink.	Sublimated oxyd of zink.
Fluids aëriform.	Gaſes.
Fluids elaſtic.	Gaſes.
Fluor ammoniacal	Fluat of ammoniac. Ammoniacal fluat.
Fluor argillous.	Aluminous fluat. Fluat of alumine.
Fluor of magneſia.	Fluat of magneſia.
Fluor of potaſh.	Fluat of potaſh.

Ancient Names.	*New Names.*
Fluor of ſoda.	Fluat of ſoda.
Fluor ponderous.	Barytic fluat.
Formiate ſalts.	Formiats.
G.	
Gas.	Gas.
Gas, acetous acid.	Acetous acid gas.
Gas, aërial muriatic acid.	Oxygenated muriatic acid gas.
Gas alkaline.	Ammoniacal gas.
Gas, cretaceous acid.	Carbonic acid gas.
Gas hepatic.	Sulphurated hydrogen gas.
Gas inflammable.	Hydrogen gas.
Gas inflammable carbonated.	Carbonated hydrogen gas.
Gas inflammable of marſhes.	Marſh hydrogen gas, (carbonated hydrogen gas and azotic gas.)
Gas mephitic.	Carbonic acid gas.
Gas, marine acid.	Muriatic acid gas.
Gas nitrous.	Nitrous gas.
Gas phlogiſticated.	Azotic gas.
Gas phoſphoric, of Mr. Gengembre.	Phoſphorated hydrogen gas.
Gas of Pruſſian blue.	Pruſſic acid gas.
Gas ſulphureous.	Sulphureous acid gas.
Gas ſylveſtre, of Helmont.	Carbonic acid gas.
Gilla vitrioli.	Sulphat of zink.
Glutenous matter of wheat.	Gluten, or glutenus.
Gold.	Gold.
Gold muriated.	Muriat of gold.
Gold thundering.	Ammoniacal oxyd of gold.

Hepar

H.

Ancient Names.	*New Names.*
Hepars.	Sulphurets.
Heat latent.	Caloric.

I.

Ink of ſympathy by cobalt.	Muriat of cobalt.
Iron.	Iron.
Iron aërated.	Carbonat of iron.
Iron acetated.	Acetite of iron.
Jupiter.	Tin.

K.

Kermes mineral.	Red ſulphurated oxyd of antimony.

L.

Lapis infernalis.	Molten nitrat of ſilver.
Lead, or ſaturn.	Lead.
Lead muriated.	Muriat of lead.
Lead ſpathic.	Carbonat of lead.
Lead ſubacetated.	White oxyd of lead by the acetous acid.
Lead ſuperacetated.	Acetite of lead.
Lemon-juice.	Citric acid.
Ley of ſoap.	Solution of ſoda.
Ley, mother.	Deliqueſcent ſaline reſiduum.
Lignite ſalts.	Pyro-lignites.
Lily of Paracelſus.	Alcohol of potaſh.
Lime-water.	Lime-water.
Lime-water of Pruſſian blue.	Pruſſiat of lime.
Liquor, Boyle's ſmoking.	Ammoniacal ſulphuret.

Ancient Names.	*New Names.*
Liquor, Libavius's ſmoking.	Smoking muriat of tin.
Liquor ſaturated with the coloring matter of Pruſſian blue.	Pruſſiat of potaſh.
Litharge.	Demi-vitreous oxyd of lead, or litharge.
Light.	Light.
Liver of antimony.	Sulphurated oxyd of antimony.
Liver of arſenic.	Arſenical oxyd of potaſh.
Livers of ſulphur.	Alkaline ſulphurets.
Livers of ſulphur, earthy.	Earthy ſulphurets.
Liver of ſulphur, antimoniated.	Antimoniated alkaline ſulphuret
Liver of ſulphur, calcareous.	Calcareous ſulphuret. Sulphuret of lime.
Liver of ſulphur, barytic.	Barytic ſulphuret. Sulphuret of barytes.
Liver of ſulphur, magneſian.	Sulphuret of magneſia. Magneſian ſulphuret.
Liver of ſulphur, volatile alkaline	Ammoniacal ſulphuret. Sulphuret of ammoniac
Luna cornea.	Muriat of ſilver.

M.

Magiſtery of biſmuth.	Oxyd of biſmuth by the nitric acid.
Magiſtery of lead.	Precipitated oxyd of lead.
Magiſtery of ſulphur.	Precipitated ſulphur.
Magneſia alba.	Carbonat of magneſia.
Magneſia aërated, of Bergman.	Carbonat of magneſia.
Magneſia black.	Black oxyd of manganeſe.
Magneſia cauſtic.	Magneſia.
Magneſia cretaceous.	Carbonat of magneſia.
Magneſia efferveſcing.	Carbonat of magneſia.

Mag.

Ancient Names.	*New Names.*
Magneſia fluorated.	Fluat of magneſia.
Magneſia ſpathic.	Fluat of magneſia.
Maluſite ſalts.	Malites of potaſh, of ſoda, &c.
Manganeſe.	Manganeſe.
Maſſicot.	Yellow oxyd of lead.
Matter of heat.	Caloric.
Matter of fire.	This term has been uſed to ſignify light, caloric, and phlogiſton.
Matter pearly of Kerkringius.	White oxyd of antimony by precipitation.
Matter coloring of Pruſſian blue.	Pruſſic acid.
Mephiticated metals, earths, &c.	Carbonats of metals, &c.
Mercury.	Mercury.
Mercury acetated.	Acetite of mercury.
Mercurius dulcis.	Mild mercurial muriat.
Mercury precipitate, white.	Mercurial muriat by precipitation.
Mercury of metals.	Beecher's hypothetical principle.
Minium.	Red oxyd of lead, or minium.
Mophet, atmoſpherical.	Azotic gas.
Molybden.	Molybden.
Molybden, ſaline compoſitions of.	Molybdats.
Mucilage.	Mucus.
Muriated metals.	Muriats of different metals.
Muriated gold, or reguline ſalt of gold.	Muriat of gold.
Muriated mercury, corroſive.	Corroſive mercurial muriat.

N.

Natron or mineral natrum.	Carbonat of ſoda.
Nitre.	Nitrat of potaſh, or nitre.

Ancient Names.	*New Names.*
Nitre ammoniacal.	Ammoniacal nitrat.
Nitre argillous.	Nitrat of alumine.
Nitre calcareous.	Nitrat of lime. Calcareous nitrat.
Nitre cubic.	Nitrat of ſoda.
Nitre Egyptian.	Nitrat of ſoda.
Nitre fixed by itſelf.	Carbonat of potaſh.
Nitre lunar.	Nitrat of ſilver.
Nitre of arſenic.	Nitrat of arſenic.
Nitre of biſmuth.	Nitrat of biſmuth.
Nitre of cobalt.	Nitrat of cobalt.
Nitre of copper.	Nitrat of copper.
Nitre of iron.	Nitrat of iron.
Nitre of lead.	Nitrat of lead.
Nitre of magneſia.	Nitrat of magneſia.
Nitre of mangameſe.	Nitrat of mangameſe.
Nitre of nickel.	Nitrat of nickel.
Nitre of ponderous earth.	Barytic nitrat. Nitrat of barytes.
Nitre of ſilver.	Nitrat of ſilver.
Nitre of tin.	Nitrat of tin.
Nitre of zink.	Nitrat of zink.
Nitre priſmatic.	Nitrat of potaſh.
Nitre quadrangular.	Nitrat of ſoda.
Nitre rhomboidal.	Nitrat of ſoda.
Nitre ſaturnine.	Nitrite of lead.
	O.
Ocbre.	Yellow oxyd of iron.
Oil of lime.	Calcareous muriat.
Oil of philoſophers.	Empyreumatic fixed oil.
Oil of tartar per deliquium.	Potaſh mixed with carbonat of potaſh in deliqueſcence.

Oil

Ancient Names.	*New Names.*
Oil of vitriol.	Sulphuric acid.
Oils æthereal.	Volatile oils,
Oils animal.	Volatile animal oils.
Oils empyreumatic.	Empyreumatic oils.
Oils eſſential.	Volatile oils.
Oils expreſſed.	Fixed oils.
Oils groſs.	Fixed oils.
Oils unctuous.	Fixed oils.
Ore of antimony.	Native ſulphuret of antimony.
Ore of iron, of marſhes.	Iron ore, containing phoſphat of iron.
P.	
Pewter.	Alloy of copper & tin, pewter.
Phlogiſton.	Stahl's hypothetical principle.
Phoſphate ammoniacal.	Ammoniacal phoſphat. Phoſphat of ammoniac.
Phoſphate of barytes.	Phoſphat of barytes. Barytic phoſphat.
Phoſphate calcareous.	Phoſphat of lime.
Phoſphate of magneſia.	Magneſian phoſphat.
Phoſphate of potaſh.	Phoſphat of potaſh.
Phoſphate of ſoda.	Phoſphat of ſoda.
Phoſphorus Baldwin's.	Dry calcareous nitrite.
Phoſphorus of Kunkel.	Phoſphorus.
Phoſphorous of Homberg.	Dry calcareous muriat.
Platina.	Platina.
Plumbago.	Carburet of iron.
Pompholix.	Sublimated oxyd of zink.
Potaſh, or potaſhes common.	Impure carbonat of potaſh.
Powder of algaroth.	Oxyd of antimony by the muriatic acid.
Powder of count de Palma.	Carbonat of magneſia.

Powder

Ancient Names.	*New Names.*
Powder of Sentinelly.	Carbonat of magneſia.
Precipitate golden, or purple of Caſſius.	Oxyd of gold precipitated by tin.
Precipitate red.	Red oxyd of mercury by the nitric acid.
Precipitate per ſe.	Red oxyd of mercury by fire.
Precipitate yellow.	Yellow oxyd of mercury by the ſulphuric acid.
Precipitate white by the muriatic acid.	Muriat of mercury by precipitation.
Principle acidifying.	Oxygen.
Principle aſtringent.	Gallic acid.
Principle inflammable, ſee phlogiſton.	
Principle mercurial.	Beecher's hypothetical principle.
Principle of charcoal.	Carbon.
Principle ſorbile of Ludbock.	Oxygen.
Pruſſite calcareous.	Calcareous pruſſiat. Pruſſiat of lime.
Pruſſite of ſoda.	Pruſſiat of ſoda.
Pyrites of copper.	Sulphuret of copper.
Pyrites martial.	Sulphuret of iron.
Pyrophore of Homberg.	Carbonated ſulphuret of alumine. Pyrophore of Homberg.

R.

Realgar.	Red ſulphurated oxyd of arſenic.
Realgites, ſalts formed with aqua-regia.	Nitro-muriats.

Ancient Names.	*New Names.*
Regulus.	A word uſed to ſignify the metallic ſtate.
Regulus of antimony.	Antimony.
Regulus of arſenic.	Arſenic.
Regulus of cobalt.	Cobalt.
Regulus of manganeſe.	Manganeſe.
Regulus of molybden.	Molybden.
Regulus of ſyderite.	Phoſphuret of iron.
Reſins.	Reſins.
Ruſt of copper.	Green oxyd of copper.
Ruſt of iron.	Carbonat of iron.
Rubine of antimony.	Vitreous brown ſulphurated oxyd of antimony.

S.

Ancient Names.	*New Names.*
Saffron of mars.	Oxyd of iron.
Saffron of mars, aperitive.	Carbonat of iron.
Saffron of mars, aſtringent.	Brown oxyd of iron.
Saffron of metals.	Demi-vitreous ſulphurated oxyd of antimony.
Sal ammoniac.	Ammoniacal muriat. Muriat of ammoniac.
Sal ammoniac fixed.	Calcareous muriat. Muriat of lime.
Sal de duobus.	Sulphat of potaſh.
Sal polychreſt of Glaſer.	Sulphat of potaſh.
Sal polychreſt of Rochelle.	Tartrite of ſoda.
Sal ſodæ, ſee ſoda.	
Salt, acetous ammoniacal.	Ammoniacal acetite. Acetite of ammoniac.
Salt, acetous calcareous.	Calcareous acetite. Acetite of lime.

Antient Names.	*New Names.*
Salt, acetous magneſian.	Magneſian acetite.
	Acetite of magneſia.
Salt acetous martial.	Acetite of iron.
Salt acetous mineral.	Acetite of ſoda.
Salt acetous of argil.	Aluminous acetite.
Salt acetous of zink.	Acetite of zink.
Salt ammoniacal cretaceous.	Ammoniacal carbonat.
Salt ammoniacal fixed.	Calcareous muriat.
	Muriat of lime.
Salt ammoniacal nitrous.	Nitrat of ammoniac.
Salt ammoniacal ſecret of Glauber	Sulphat of ammoniac.
Salt ammoniacal ſedative.	Ammoniacal borat.
Salt ammoniacal ſpathic.	Fluat of ammoniac.
Salt ammoniacal vitriolic.	Ammoniacal ſulphat.
Salt bitter purging.	Magneſian ſulphat.
	Sulphat of magneſia.
Salt common.	Muriat of ſoda.
Salt febrifuge of Sylvius.	Muriat of potaſh.
Salt fuſible of urine.	Phoſphat of ſoda and ammoniac.
Salt (Glauber's).	Sulphat of ſoda.
Salt marine argillous.	Aluminous muriat.
	Muriat of alumine.
Salt marine calcareous.	Calcareous muriat.
	Muriat of lime.
Salt marine magneſian.	Magneſian muriat.
	Muriat of magneſia.
Salt marine of iron.	Muriat of iron.
Salt marine of zink.	Muriat of zink.
Salt native of urine.	Phoſphat of ſoda and ammoniac.
Salt, neutral arſenical, of Macquer.	Acidulous arſeniat of potaſh.
Salt of alembroth.	Ammoniaco-mercurial muriat.

Ancient Names.	*New Names.*
Salt of amber, obtained by cryſtallization.	Cryſtallized ſuccinic acid.
Salt of colcothar.	Sulphat of iron, in a ſtate little known.
Salt of Epſom.	Sulphat of magneſia.
Salt of Jupiter.	Muriat of tin.
Salt of milk.	Sugar of milk.
Salt of Schedſchutz.	Magneſian ſulphat.
Salt of Sedlitz.	Sulphat of magneſia.
Salt of Segner.	Sebat of potaſh.
Salt of Seignette.	Tartrite of ſoda.
Salt of ſorrel.	Acidulous oxalat of potaſh.
Salt of wiſdom.	Ammoniaco-mercurial muriat.
Salt of wormwood, common.	Carbonat of potaſh.
Salt-petre.	Nitrat of potaſh, or nitre.
Salt regaline of gold.	Muriat of gold.
Salt ſedative.	Boracic acid.
Salt ſedative mercurial.	Borat of mercury.
Salt ſedative ſublimated.	Sublimated boracic acid.
Salt ſtanno-nitrous.	Nitrat of tin.
Salt ſulphureous, of Stahl.	Sulphite of potaſh.
Salt, vegetable.	Tartrite of potaſh.
Salt volatile of amber.	Sublimated ſuccinic acid.
Salt, wonderful pearly.	Surſaturated phoſphat of ſoda.
Saturn.	Lead.
Selenite.	Sulphat of lime.
Silver.	Silver.
Silver muriated.	Muriat of ſilver.
Silver ſuperinitrated.	Molten nitrat of ſilver.
Snow of antimony.	White ſublimated oxyd of antimony.
Soaps acid.	Acid ſoaps.
Soaps alkaline.	Alkaline ſoaps.

Ancient Names.	*New Names.*
Soaps earthy, of Mr. Bertholet.	Earthy ſoaps.
Soaps metallic, of Mr. Bertholet.	Metallic ſoaps.
Soap of Starkey.	Saponul of potaſh.
Soda, cauſtic.	Soda.
Soda cretaceous.	Carbonat of ſoda.
Spaniſh-white.	White oxyd of lead by the acetous acid.
Spar ammoniacal.	Ammoniacal fluat.
Spar calcareous.	Carbonat of lime.
Spar fluor.	Calcareous fluat.
Spar ponderous.	Sulphat of barytes.
Spirits acid.	Acids diluted with water.
Spirit acid, of box.	Pyroligneous acid.
Spirit alkaline volatile.	Ammoniac gas, or ammoniacal gas.
Spirit ardent.	Alcohol.
Spirit of mindererus.	Ammoniacal acetite.
Spirit of nitre.	Nitric acid diluted with water
Spirit of nitre dulcified.	Nitric alcohol.
Spirit of nitre ſmoking.	Nitrous acid.
Spirit of ſalt.	Muriatic acid.
Spirit of ſal ammoniac.	Ammoniac,
Spirit of venus.	Acetic acid.
Spirit of vitriol.	Sulphuric acid diluted with water.
Spirit of wine.	Alcohol.
Spirit rector, or the matter of odor in flowers.	Aroma.
Spirit volatile of ſal ammoniac.	Ammoniac diluted with water.
Spiritus ſylveſtre, of Helmont.	Carbonic acid.
Sublimate corroſive.	Corroſive muriat of mercury.
Sugar.	Sugar.
Surgar canded.	Cryſtallized ſugar.
Sugar of lead.	Acetite of lead.

Sugar

Ancient Names.	*New Names.*
Sugar or ſalt of milk.	Sugar of milk.
Sulphur.	Sulphur.
Sulphur golden of antimony.	Orange-colored ſulphurated oxyd of antimony.
Syderite.	Phoſphat of iron.
Syderotete of Mr. de Morveau.	Phoſphuret of iron.
	T.
Tartar.	Acidulous tartrite of potaſh.
Tartar ammoniacal.	Ammoniacal tartrite.
Tartar antimoniated.	Antimoniated tartrite of potaſh
Tartar calcareous.	Tartrite of lime.
Tartar chalybeated.	Ferruginous tartrite of potaſh.
Tartar cretaceous.	Carbonat of potaſh.
Tartar crude.	Tartar.
Tartar cupreous.	Tartrite of copper.
Tartar emetic.	Antimoniated tartrite of potaſh
Tartar of magneſia.	Tartrite of magneſia.
Tartar of potaſh.	Tartrite of potaſh.
Tartar of ſoda.	Tartrite of ſoda.
Tartar martial ſoluble.	Ferruginous tartrite of potaſh.
Tartar mephiticated.	Carbonat of potaſh.
Tartar mercurial.	Mercurial tartrite.
Tartar ſaturnine.	Tartrite of lead.
Tartar ſpathic or of ſpar.	Fluat of potaſh.
Tartar ſoluble.	Tartrite of potaſh.
Tartar ſtibiated.	Antimoniated tartrite of potaſh
Tartar tartariſed.	Tartrite of potaſh.
Tartar tartariſed containing antimony.	Tartrite of potaſh ſurcompounded with antimony.
Tartar vitriolated.	Sulphat of potaſh.
Tincture acrid of tartar.	Alcohol of potaſh.

Ancient Names.	*New Names.*
Tinctures ſpirituous.	Reſinous alcohols.
Tin.	Tin.
Tin muriated.	Muriat of tin.
Tungſtein.	Tunſtein, or tungſtein.
Turbith mineral.	Yellow oxyd of mercury by the ſulphuric acid.
Turbith nitrous.	Yellow oxyd of mercury by the nitric acid.
	V.
Verdegris.	Green oxyd of copper.
Verdegris of the ſhops.	Acetite of copper, with exceſs of oxyd of copper.
Venus.	Copper.
Vinegar diſtilled.	Acetous acid.
Vinegar of ſaturn.	Acetite of lead.
Vinegar radical.	Acetic acid.
Vitriol ammoniacal.	Ammoniacal ſulphat.
Vitriol blue, or roman vitriol.	Sulphat of copper.
Vitriol green, or copperas.	Sulphat of iron.
Vitriol magneſian.	Sulphat of magneſia.
Vitriol martial.	Sulphat of iron.
Vitriol of antimony.	Sulphat of antimony.
Vitriol of clay or argile.	Sulphat of alumine.
Vitriol of biſmuth.	Sulphat of biſmuth.
Vitriol of cobalt.	Sulphat of cobalt.
Vitriol of copper.	Sulphat of copper.
Vitriol of Cyprus.	Sulphat of copper.
Vitriol of lead.	Sulphat of lead.
Vitriol of manganeſe.	Sulphat of manganeſe.
Vitriol of mercury.	Sulphat of mercury.
Vitriol of nickel.	Sulphat of nickel
Vitriol of platina.	Sulphat of platina.

Ancient Names.	*New Names.*
Vitriol of potaſh.	Sulphat of potaſh.
Vitriol of ſilver.	Sulphat of ſilver.
Vitriol of ſoda.	Sulphat of ſoda.
Vitriol of tin.	Sulphat of tin.
Vitriol of zink.	Sulphat of zink.
Vitriol white.	Sulphat of zink.
	W.
Water.	Water.
Wolfram of Meſſ. d'Elhuyar	Tunſtein.
	Z.
Zink.	Zink.

A DICTIONARY OF THE NEW CHYMICAL NOMENCLATURE.

A.

New Names.	Ancient Names.
ACETATS. *Acetas, tis, s. m.*	SALTS formed by the union of the acetic acid or radical vinegar, with different baſes.
Acetat aluminous, or *Acetat of alumine.* *Acetas aluminoſus.*	
Acetat ammoniacal, or *Acetat of ammoniac.* (1) *Acetas ammoniacalis.*	

Acetat

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(1) Theſe two manners of expreſſing the baſis of a neutral ſalt will not again be repeated; but the one or the other ſhall without diſtinction be uſed. Theſe firſt examples are ſufficient to ſhew that either the ſubſtantive or the adjective may be uſed with equal propriety.

The ſame obſervation agrees alſo with the Latin nomenclature.

New Names.	Ancient Names.
Acetat of arſenic. *Acetas arſenici.*	
Acetat of barytes. *Acetas barytæ.*	
Acetat of biſmuth. *Acetas biſmuthi.*	
Acetat of cobalt. *Acetas cobalti.*	
Acetat of copper. *Acetas cupri.*	
Acetat of gold. *Acetas auri.*	
Acetat of iron. *Acetas ferri.*	
Acetat of lead. *Acetas plumbi.*	
Acetat of lime. *Acetas calcareus.*	
Acetat of magneſia. *Acetas magneſiæ.*	
Acetat of manganeſe. *Acetas magneſii.*	
Acetat of mercury. *Acetas hydrargiri.*	
Acetat of molybden. *Acetas molybdeni.*	
Acetat of nickel. *Acetas niccoli.*	
Acetat of platina. *Acetas platini.*	
Acetat of potaſh. *Acetas potaſſæ.*	

New Names.	Ancient Names.
Acetat of ſilver. *Acetas argenti.*	
Acetat of ſoda. *Acetas ſodæ.*	
Acetat of tin. *Acetas ſtanni.*	
Acetat of tunſtein. *Acetas tunſteni.*	
Acetat of zink. *Acetas zinci.*	
Acetites. *Acetis, itis, s. m.*	Salts formed by the union of the acetous acid, or diſtilled vinegar, with different baſes.
Acetite aluminous. *Acetis aluminoſus.*	*Acetated clay.*
Acetite ammoniacal. *Acetis ammoniacalis.*	*Mindererus's ſpirit.*
Acetite of antimony. *Acetis ſtibii.*	
Acetite of arſenic. *Acetis arſenicalis.*	
Acetite of barytes. *Acetis baryticus.*	
Acetite of biſmuth. *Acetis biſmuthi.*	
Acetite of cobalt. *Acetis cobalti.*	
Acetite of copper. *Acetis cupri.*	*Cryſtals of Venus.*
Acetite of gold. *Acetis auri.*	
Acetite of iron. *Acetis ferri.*	
Acetite of lead. *Acetis plumbi.*	*Sugar of lead.* *Super-acetated lead.*

New Names.	Ancient Names.
Acetite of lime. *Acetis calcareus.*	
Acetite of magneſia. *Acetis magneſiæ.*	*Acetous ſalt of magneſia.*
Acetite of manganeſe. *Acetis magneſii.*	
Acetite of mercury. *Acetis hydrargiri.*	*Foliated earth of mercury.*
Acetite of molybden. *Acetis molybdeni.*	
Acetite of nickel. *Acetis niccoli.*	
Acetite of platina. *Acetis platini.*	
Acetite of potaſh. *Acetis potaſſæ, vel potaſſeus.*	*Foliated earth of tartar.*
Acetite of ſilver. *Acetis argenti.*	
Acetite of ſoda. *Acetis ſodæ, vel ſodaceus.*	*Mineral foliated earth.*
Acetite of tin. *Acetis ſtanni.*	
Acetite of tunſtein. *Acetis tunſteni.*	
Acetite of zink. *Acetis zinci.*	*Acetous ſalt of zink.*
Acid acetic. *Acidum aceticum.*	*Radical vinegar.* *Spirit of Venus.*
Acid acetous. *Acidum acetoſum.*	*Acetous acid.* *Diſtilled vinegar.*
Acid arſenic. *Acidum arſenicum.*	*Arſenical acid.*
Acid benzoic. *Acidum benzoicum.*	*Acid of Benjamin.*

Acid

New Names.	Ancient Names.
Acid benzoic ſublimated. *Acidum benzoicum ſublimatum*	*Flowers of Benjamin.*
Acid boracic. *Acidum boracicum.*	*Volatile narcotic ſalt of vitroil.* *Sedative ſalt, acid of borax.*
Acid bombic. *Acidum bombicum.*	*Acid of ſilk worms.*
Acid carbonic. *Acidum carbonicum.*	*Gas Sylveſtre, of Van Helmont.* *Spiritus Sylveſtris.* *Fixed air,* of Dr. Black. *Aerial acid.* *Atmoſpheric acid.* *Mephitic acid.* *Cretaceous acid.* *Acid of charcoal.*
Acid citric. *Acidum citricum.*	*Lemon juice.*
Acid fluoric. *Acidum fluoricum.*	*Fluoric acid.* *Acid of ſpar.*
Acid formic. *Acidum formicum.*	*Formic acid, acid of ants.*
Acid gallic. *Acidum gallæ, ſeu gallaceum.*	*Aſtringent principle.* Gallic acid.
Acid lactic. *Acidum lacticum.*	*Sower whey, galactic acid.*
Acid lithic. *Acidum lithicum.*	*Acid of bezoar.* *Lithiaſic acid.*
Acid malic. *Acidum malicum.*	*Acid of apples.* *Muluſian acid.*
Acid molybdic. *Acidum molybdicum.*	*Acid of molybden.* *Acid of wolfram.*
Acid muriatic. *Acidum muriaticum.*	*Acid of ſea-ſalt.* *Smoking ſpirit of ſalt.* *Marine acid.*

New Names.	Ancient Names.
Acid muriatic oxygenated. *Acidum muriaticum oxygenatum.*	*Dephlogiſticated marine acid.* *Aërated marine acid.*
Acid nitrous. *Acidum nitroſum.*	*Phlogiſticated nitrous acid.* *Smoking nitrous acid.* *Smoking ſpirit of nitre.*
Acid nitric. *Acidum nitricum.*	*White nitrous acid.* *Degazated nitrous acid.* *Dephlogiſticated nitrous acid.*
Acid nitro-muriatic. *Acidum nitro-muriaticum.*	*Aqua regia.* *Regaline acid.*
Acid oxalic. *Acidum oxalicum.*	*Acid of ſorrel.* *Saccharine acid.* *Acid of ſugar.*
Acid phoſphorous. *Acidum phoſphoroſum.*	*Volatile phoſphoric acid.*
Acid phoſphoric. *Acidum phoſphoricum.*	*Acid of phoſphorus.* *Acid of urine.*
Acid Pruſſic. *Acidum Pruſſicum.*	*Coloring matter of Pruſſian blue.*
Acid pyro-ligneous. *Acidum pyrolignoſum.*	*Empyreumatic acid ſpirit of box.*
Acid pyro-mucous. *Acidum pyro-mucoſum.*	*Spirit of honey, of ſugar, &c.*
Acid pyro-tartareous. *Acidum pyro-tartaroſum.*	*Spirit of tartar.*
Acid ſaccho-lactic. *Acidum ſaccho-lacticum.*	*Acid of the ſugar of milk.*
Acid ſebacic. *Acidum ſebacicum.*	*Acid of fat.*
Acid ſuccinic. *Acidum ſuccinicum.*	*Volatile ſalt of amber.* *Acid of amber.*

Acid

New Names.	Ancient Names.
Acid ſulphureous. *Acidum ſulphuroſum.*	*Sulphureous acid.* *Volatile ſulphureous acid.* *Phlogiſticated vitriolic acid.* *Spirit of ſulphur.*
Acid ſulphuric. *Acidum ſulphuricum.*	*Acid of ſulphur.* *Vitriolic acid.* *Oil of vitriol,* *Spirit of vitriol.*
Acid tartareous. *Acidum tartaroſum.*	*Acid of tartar.*
Acid tunſtic. *Acidum tunſticum.*	*Acid of tungſtein.* *Acid of wolfram.*
Affinity. *Affinitas.*	*Affinity.*
Aggregation. *Aggregatio.*	*Aggregation.*
Air atmoſpherical. *Aer atmoſphæricus.*	*Atmoſpherical air.*
Alkalies. *Alkalis.*	*Alkalies in general.*
Alcohol. *Alcohol,* indecl.	*Spirit of wine.* *Ardent ſpirits.*
Alcohol of potaſh. *Alcohol potaſſæ.*	*Lily of Paracelſus.* *Acrid tincture of tartar.*
Alcohol nitric. *Alcohol nitricum.*	*Dulcified ſpirit of nitre.*
Alcohols reſinous. *Alcohol reſinoſa.*	*Spirituous tinctures.*
Alloy, or allay. *Connubium metallicum.*	*Alloy of metals.*
Alumine, - *Alumina.*	*Earth of alum.* *Baſis of alum.* *Pure argillous earth.*

Amalgam

New Names.	Ancient Names.
Amalgam.	*Amalgam.*
Ammoniac. *Ammoniaca.*	*Volatile alkali cauſtic.* *Fluor volatile alkali.* *Volatile ſpirit of ſal ammoniac.*
Antimony. *Antimonium, ſtibium.*	*Regulus of antimony.*
Argile or clay, a mixture of alumine and ſilice. *Argilla.*	*Clay or argillous earth.*
Aroma. *Aroma.*	*Odoriferous principle of flowers.*
Arſeniats. *Arſenias, tis, s. m.*	*Arſenical ſalts.*
Arſeniat acidulous of potaſh. *Arſenias acidulus potaſſæ.*	*Arſenical neutral ſalt, of Macquer*
Arſeniat of alumine. *Arſenias aluminæ.*	
Arſeniat of ammoniac. *Arſenias ammoniacæ ſeu ammoniacalis.*	*Arſenical ammoniac.*
Arſeniat of barytes. *Arſenias barytæ.*	
Arſeniat of biſmuth. *Arſenias biſmuthi.*	
Arſeniat of cobalt. *Arſenias cobalti.*	
Arſeniat of copper. *Arſenias cupri.*	
Arſeniat of gold. *Arſenias auri.*	
Arſeniat of iron. *Arſenias ferri.*	
Arſeniat of lime. *Arſenias calcis.*	

New Names.	Ancient Names.
Arſeniat of magneſia. *Arſenias magneſiæ.*	
Arſeniat of manganeſe. *Arſenias magneſii.*	
Arſeniat of mercury. *Arſenias hydrargiri.*	
Arſeniat of molybden. *Arſenias molybdeni.*	
Arſeniat of nickel. *Arſenias niccoli.*	
Arſeniat of platina. *Arſenias platini.*	
Arſeniat of potaſh. *Arſenias potaſſæ.*	
Arſeniat of ſilver. *Arſenias argenti.*	
Arſeniat of ſoda. *Arſenias ſodæ.*	
Arſeniat of tin. *Arſenias ſtanni.*	
Arſeniat of tunſtein. *Arſenias tunſteni.*	
Arſeniat of zink, *Arſenias zinci.*	

B,

Barytes. *Baryta,*	*Ponderous earth.* *Barytes.* *Baſis of ponderous ſpar.*
Balſams. *Balſama,*	*Buquet's balſams.* (reſins united with a concrete acid ſalt.)
Benzoin. *Benzoe,*	*Benzoin or Benjamin.*

Benzoats,

New Names.	Ancient Names.
Benzoats. *Benzoas, tis, s. m.*	Salts formed by the union of the benzoic acid with different baſes. The ſalts of this genus have no appellations in the ancient nomenclature.
Benzoat of alumine. *Benzoas aluminoſus.*	
Benzoat of ammoniac. *Benzoas ammoniacalis.*	
Benzoat of antimony. *Benzoas ſtibii.*	
Benzoat of arſenic. *Benzoas arſenicalis.*	
Benzoat of barytes. *Benzoas baryticus.*	
Benzoat of biſmuth. *Benzoas biſmuthi.*	
Benzoat of cobalt. *Benzoas cobalti.*	
Benzoat of copper. *Benzoas cupri.*	
Benzoat of gold. *Benzoas auri.*	
Benzoat of iron. *Benzoas ferri.*	
Benzoat of lead. *Benzoas plumbi.*	
Benzoat of lime. *Benzoas calcareus.*	
Benzoat of magneſia. *Benzoas magneſiæ.*	
Benzoat of mangeneſe. *Benzoas magneſii.*	

Benzoat

New Names.	Ancient Names.
Benzoat of mercury. *Benzoas hydrargiri.*	
Benzoat of molybden. *Benzoas molybdeni.*	
Benzoat of nickel. *Benzoas niccoli.*	
Benzoat of platina. *Benzoas platini.*	
Benzoat of potaſh. *Benzoas potaſſæ.*	
Benzoat of ſilver. *Benzoas argenti.*	
Benzoat of ſoda. *Benzoas ſodæ.*	
Benzoat of tin. *Benzoas ſtanni.*	
Benzoat of tunſtein. *Benzoas tunſteni.*	
Benzoat of zink. *Benzoas zinci.*	
Biſmuth. *Biſmuthum.*	*Biſmuth.*
Bitumens. *Bitumina.*	*Bitumens.*
Bombiats. *Bombias, tis, ſ. m.*	Salts formed by the union of the bombic acid with different baſes. This genus of ſalt had no appellation in the ancient nomenclature.
Bombiat of alumine. *Bombias aluminoſus.*	
Bombiat of ammoniac. *Bombias ammoniacalis.*	

New Names.	Ancient Names.
Bombiat of antimony.	
Bombias ſtibii.	
Bombiat of arſenic.	
Bombias arſenicalis.	
Bombiat of barytes.	
Bombias baryticus.	
Bombiat of biſmuth.	
Bombias biſmuthi.	
Bombiat of cobalt.	
Bombias cobalti.	
Bombiat of copper.	
Bombias cupri.	
Bombiat of gold.	
Bombias auri.	
Bombiat of lead.	
Bombias plombi.	
Bombiat of iron.	
Bombias ferri.	
Bombiat of lime.	
Bombias calcareus.	
Bombiat of magneſia.	
Bombias magneſiæ.	
Bombiat of mangeneſe.	
Bombias magneſii.	
Bombiat of mercury.	
Bombias hydrargiri.	
Bombiat of molybden.	
Bombias molybdeni.	
Bombiat of nickel.	
Bombias niccoli.	
Bombiat of platina.	
Bombias platini.	
Bombiat of potaſh.	
Bombias potaſſæ.	

Bombiat

New Names.	Ancient Names.
Bombiat of ſilver. *Bombias argenti.*	
Bombiat of ſoda. *Bombias ſodæ.*	
Bombiat of tin. *Bombias ſtanni.*	
Bombiat of tunſtein. *Bombias tunſteni.*	
Bombiat of zink. *Bombias zinci.*	
Borat. *Boras, tis, s. m.*	*Borax.*
Borat aluminous. *Boras aluminoſus.*	*Argillous borax.*
Borat ammoniacal. *Boras ammoniacalis.*	*Ammoniacal borax.* *Sedative ſal ammoniac.*
Borat of antimony. *Boras ſtibii.*	*Borax of antimony.*
Borat of arſenic. *Boras arſenici.*	
Borat of barytes. *Boras barytæ.*	*Ponderous borax.*
Borat of biſmuth. *Boras biſmuthi.*	
Borat of cobalt. *Boras cobalti.*	*Borax of cobalt.*
Borat of copper. *Boras cupri.*	*Borax of copper.*
Borat of gold. *Boras auri.*	
Borat of iron. *Boras ferri.*	*Borax of iron.*
Borat of lead. *Boras plumbi.*	

New Names.	Ancient Names.
Borat of lime. *Boras calcis.*	
Borat of magneſia. *Boras magneſiæ.*	*Magneſian borax.*
Borat of manganeſe. *Boras magneſii.*	
Borat of mercury. *Boras mercurii.*	*Mercurial borax.* *Mercurial ſedative ſalt.*
Borat of molybden. *Boras molybdeni.*	
Borat of nickel. *Boras niccoli.*	
Borat of platina. *Boras platini.*	
Borat of potaſh. *Boras potaſſæ.*	*Vegetable borax.*
Borat of ſilver. *Boras argenti.*	
Borat of ſoda. *Boras ſodæ.*	*Common borax ſaturated with boracic acid.*
Borat of tin. *Boras ſtanni.*	
Borat of tunſtein. *Boras tunſteni.*	
Borat of zink. *Boras zinci.*	*Borax of zink.*
Borax of ſoda, *or* Borat ſurſaturated with ſoda.	*Rough borax.* *Tinckal.* *Cryſocolla.* *Borax of commerce.* *Sub-boraxated mineral alkali.*

C.

New Names.	**Ancient Names.**
Caloric. *Caloricum.*	*Latent heat.* *Fixed heat.* *Matter of heat.*
Camphor. *Camphora.*	*Camphor.*
Camphorat. *Camphoras, tis, s. m.*	Salts formed by the union of the camphoric acid with different baſes. Theſe ſalts were unknown to former chymiſts, and have no names in the ancient nomenclature.
Camphorat of alumine. *Camphoras aluminoſus.*	
Camphorat of ammoniac. *Camphoras ammoniacalis.*	
Camphorat of antimony. *Camphoras ſtibii.*	
Camphorat of arſenic. *Camphoras arſenicalis.*	
Camphorat of barytes. *Camphoras baryticus.*	
Camphorat of biſmuth. *Camphoras biſmuthi.*	
Camphorat of cobalt. *Camphoras cobalti.*	
Camphorat of copper. *Camphoras cupri.*	
Camphorat of gold. *Camphoras auri.*	

New Names.	Ancient Names.
Camphorat of iron. *Camphoras ferri.*	
Camphorat of lead. *Camphoras plumbi.*	
Camphorat of lime. *Camphoras calcis.*	
Camphorat of magneſia. *Camphoras magneſiæ.*	
Camphorat of manganeſe. *Camphoras magneſii.*	
Camphorat of mercury. *Camphoras hydrargiri.*	
Camphorat of molybden. *Camphoras molybdeni.*	
Camphorat of nickel. *Camphoras niccoli.*	
Camphorat of platina. *Camphoras platini.*	
Camphorat of potaſh. *Camphoras potaſſæ.*	
Camphorat of ſilver. *Camphoras argenti.*	
Camphorat of ſoda. *Camphoras ſodæ.*	
Camphorat of tin. *Camphoras ſtanni.*	
Camphorat of tunſtein. *Camphoras tunſteni.*	
Camphorat of zink. *Camphoras zinci.*	
Carbon. *Carbonicum.*	*Pure charcoal.*
Carbonat. *Carbonas, tis, ſ. m.*	Salts formed by the union of the carbonic acid with baſes.

Carbonat

New Names.	Ancient Names.
Carbonat of alumine. *Carbonas aluminoſus.*	*Cretaceous argil.*
Carbonat of ammoniac. *Carbonas ammoniaci.*	*Concrete volatile alkali.* Bi-carbonat *Ammoniacal chalk.* Sesquicarbonat Smelling salts -
Carbonat of antimony. *Carbonas antimonii.*	
Carbonat of arſenic. *Carbonas arſenicalis.*	
Carbonat of barytes. *Carbonas baryticus.*	
Carbonat of biſmuth. *Carbonas biſmuthi.*	
Carbonat of cobalt. *Carbonas cobalti.*	
Carbonat of copper. *Carbonas cupri.*	
Carbonat of gold. *Carbonas auri.*	
Carbonat of iron. *Carbonas ferri.*	*Aperitive ſaffron of mars.* *Ruſt of iron.* *Aërated iron.* *Martial chalk.* *Mephiticated iron.*
Carbonat of lead. *Carbonas plumbi.*	*Chalk of lead.* *Spathic lead.*
Carbonat of lime. *Carbonas calcis.*	*Chalk.* *Lime-ſtone.* *Aërated calcareous earth.* *Calcareous ſpar.* *Cream of lime.*
Carbonat of magneſia. *Carbonas magneſiæ.*	*Magneſian earth.* *Magneſia alba, of the ſhops.* *Bergman's aërated magneſia.* *Cretaceous magneſia.*

New Names.	Ancient Names.
Carbonat of magneſia. *Carbonas magneſiæ.*	*Magneſian chalk.* *Kirwan's muriatic earth.* *Count de Palma's, and Sentinelli's powder.*
Carbonat of manganeſe. *Carbonas magneſii.*	
Carbonat of mercury. *Carbonas mercurii.*	
Carbonat of molybden. *Carbonas molybdeni.*	
Carbonat of nickel. *Carbonas niccoli.*	
Carbonat of platina. *Carbonas platini.*	
Carbonat of potaſh. *Carbonas potaſſæ.*	*Salt of tartar.* *Vegetable fixed alkali.* *Salt of worm-wood.* *Aërated vegetable fixed alkali.* *Cretaceous tartar.* *Mephiticated tartar.* *Nitre fixed by itſelf.* *Van Helmont's alkaeſt.*
Carbonat of ſilver. *Carbonas argenti.*	
Carbonat of ſoda. *Carbonas ſodæ.*	*Natrum or natron.* *Baſe of marine ſalt.* *Marine or mineral alkali.* *Cryſtals of ſoda.* *Cretaceous ſoda.* *Aërated ſoda.* *Efferveſcing ſoda.* *Mephiticated ſoda, &c.*
Carbonat of tin. *Carbonas ſtanni.*	

New Names.	Ancient Names.
Carbonat of tunſtein.	
Carbonas tunſteni.	
Carbonat of zink.	*Chalk of zink.*
Carbonas zinci.	*Aërated zink.*
Carburet of iron.	*Plumbago.*
Citrats. *Citras, tis, s. m.*	Salts formed by the union of the acid of lemons with different baſes. This genus of ſalt had no name in the ancient nomenclature.
Citrat of alumine.	
Citras aluminoſus.	
Citrat of ammoniac.	
Citras ammoniaci.	
Citrat of antimony.	
Citras ſtibii.	
Citrat of arſenic.	
Citras arſenicalis.	
Citrat of barytes.	
Citras baryticus.	
Citrat of biſmuth.	
Citras biſmuthi.	
Citrat of cobalt.	
Citras cobalti.	
Citrat of copper.	
Citras cupri.	
Citrat of gold.	
Citras auri.	
Citrat of iron.	
Citras ferri.	
Citrat of lead.	
Citras plumbi.	

Ancient Names.	New Names.
Citrat of lime. *Citras calcareus.*	
Citrat of magneſia. *Citras magneſiæ.*	
Citrat of manganeſe. *Citras magneſii.*	
Citrat of mercury. *Citras mercurii.*	
Citrat of molybden. *Citras molybdeni.*	
Citrat of nickel. *Citras niccoli.*	
Citrat of platina. *Citras platini.*	
Citrat of potaſh. *Citras potaſſæ.*	
Citrat of ſilver. *Citras argenti.*	
Citrat of ſoda. *Citras ſodæ.*	
Citrat of tin. *Citras ſtanni.*	
Citrat of tunſtein. *Citras tunſteni.*	
Citrat of zink. *Citras zinci.*	
Cobalt.	*Regulus of cobalt.* *Cobalt.*
Copper. *Cuprum.*	*Copper.* *Venus.*

Diamond.

D.

New Names.	Ancient Names.
Diamond.	*Diamond.*

E.

Ether acetic. *Ether aceticum.*	*Acetous ether or æther.*
Ether muriatic. *Ether muriaticum.*	*Marine ether.*
Ether nitric. *Ether nitricum.*	*Nitrous ether.*
Ether ſulphuric. *Ether ſulphuricum.*	*Vitriolic ether.*
Extract. *Extractum.*	*Extract.*

F.

Fecula. *Fecula.*	*Fecula of vegetables.*
Fluats. *Fluas, tis, s. m.*	Salts formed by the fluoric acid, combined with different baſes.
Fluat of alumine. *Fluas aluminæ.*	*Argillous fluor.* *Spathic argile.*
Fluat of ammoniac. *Fluas ammoniacalis.*	*Spathic ſal ammoniac.* *Ammoniacal fluor.*
Fluat of antimony. *Fluas ſtibii.*	
Fluat of arſenic. *Fluas arſenicalis.*	

New Names.	Ancient Names.
Fluat of barytes. *Fluas barytæ.*	*Ponderous fluor.* *Barytic fluor.*
Fluat of biſmuth. *Fluas biſmuthi.*	
Fluat of cobalt. *Fluas cobalti.*	
Fluat of copper. *Fluas cupri.*	
Fluat of gold. *Fluas auri.*	
Fluat of iron. *Fluas ferri.*	
Fluat of lead. *Fluas plumbi.*	
Fluat of lime. *Fluas calcareus.*	*Fluor ſpar.* *Vitreous ſpar.* *Cubic ſpar.* *Phoſphoric ſpar.* *Spathic fluor.*
Fluat of magneſia. *Fluas magneſiæ.*	*Fluorated magneſia.* *Spathic magneſia.* *Magneſian fluor.*
Fluat of mangaueſe. *Fluas magneſii.*	
Fluat of mercury. *Fluas mercurii.*	
Fluat of molybden. *Fluas molybdeni.*	
Fluat of nickel. *Fluas niccoli.*	
Fluat of platina. *Fluas platini.*	
Fluat of potaſh. *Fluas potaſſæ.*	*Tartareous fluor.* *Spathic tartar.*

New Names.	Ancient Names.
Fluat of ſilver. *Fluas argenti.*	
Fluat of ſoda. *Fluas ſodæ.*	*Fluor of ſoda.* *Spathic ſoda.*
Fluat of tin. *Fluas ſtanni.*	
Fluat of tunſtein. *Fluas tunſteni.*	
Fluat of zink. *Fluas zinci.*	
Formiats. *Formias, tis, s. m.*	Salts produced by the union of the formic acid with different baſes. This genus of ſalt was without a name in the ancient nomenclature.
Formiat of alumine. *Formias aluminoſus.*	
Formiat of ammoniac. *Formias ammoniacalis.*	
Formiat of antimony. *Formias antimonii.*	
Formiat of arſenic. *Formias arſenicalis.*	
Formiat of barytes. *Formias baryticus.*	
Formiat of biſmuth. *Formias biſmuthi.*	
Formiat of cobalt. *Formias cobalti.*	
Formiat of copper. *Formias cupri.*	
Formiat of gold. *Formias auri.*	

New Names.	Ancient Names.
Formiat of iron. *Formias ferri.*	
Formiat of lead. *Formias plumbi.*	
Formiat of lime. *Formias calcareus.*	
Formiat of magneſia. *Formias magneſiæ.*	
Formiat of manganeſe. *Formias magneſii.*	
Formiat of mercury. *Formias mercurii.*	
Formiat of molybden. *Formias molybdeni.*	
Formiat of nickel. *Formias niccoli.*	
Formiat of platina. *Formias platini.*	
Formiat of ſilver. *Formias argenti.*	
Formiat of ſoda. *Formias ſodæ.*	
Formiat of tin. *Formias ſtanni.*	
Formiat of tunſtein. *Formias tunſteni.*	
Formiat of zink. *Formias zinci.*	

G.

Gas. *Gas.*	*Gas.* *Elaſtic fluid.* *Aeriform fluid.*

New Names.	Ancient Names.
Gas, acetous acid. *Gas acidum acetoſum.*	*Acetous acid gas.*
Gas ammoniacal. *Gas ammoniacale.*	*Alkaline gas*, of Dr. Prieſtley. *Alkaline air.* *Volatile alkali gas.*
Gas azotic. *Gas azoticum.*	*Vitiated air.* *Impure air.* *Phlogiſticated air.* *Phlogiſticated gas.* *Atmoſpherical mophets.*
Gas, carbonic acid. *Gas acidum carbonicum.*	*Fixed air*, of Dr. Black. *Hales's ſolid air.* *Cretaceous acid gas.* *Mephitic gas.*
Gas, carbonated hydrogen. *Gas hydrogenium carbonatum.*	*Inflammable gas with charcoal.*
Gas, fluoric acid. *Gas acidum fluoricum.*	*Spathic acid gas* of Dr. Prieſtley *Fluoric acid gas.*
Gas hydrogen. *Gas hydrogenium.*	*Inflammable air.* *Inflammable gas.* *Kirwan's phlogiſton.*
Gas hydrogen of marſhes. *Gas hydrogenium paludum.*	*Mophetized inflammable gas.* *Inflammable air of marſhes.*
Gas muriatic acid. *Gas acidum muriaticum.*	*Marine air or gas* of Dr. Prieſtley *Muriatic acid gas.*
Gas nitrous. *Gas nitroſum.*	*Nitrous gas*, of Hales and Dr. Prieſtley.
Gas, nitrous acid. *Gas acidum nitroſum.*	*Nitrous acid gas.*
Oxygen gas. *Gas oxygenium.*	*Vital air.* *Pure air.* *Dephlogiſticated air*, of Dr. Prieſtley.

Gas,

New Names.	Ancient Names.
Gas, oxygenated muriatic acid. *Gas acidum muriaticum oxygenatum.*	*Aërated muriated acid gas.* *Dephlogiſticated marine acid,* of Scheele.
Gas Pruſſic acid. *Gas acidum Pruſſicum.*	*Gas of Pruſſian blue.*
Gas, phoſphorized hydrogen. *Gas hydrogenium phoſphoriſatum.*	*Phoſphoric gas,* of Mr. Gengembre.
Gas, ſulphurated hydrogen. *Gas hydrogenium ſulphuratum*	*Hepatic gas,* of Bergman. *Sulphur-caline air.*
Gas, ſulphureous acid. *Gas acidum ſulphureum.*	*Sulphureous acid gas.* *Vitriolic acid air,* of Dr. Prieſtley.
Gluten. *Gluten.*	*Glutenous matter of flower.* *Vegeto-animal matter.*
Gold. *Aurum.*	*Gold.*
I.	
Iron. *Ferrum.*	*Iron.* *Mars.*
L.	
Lactats. *Lactas, tis, s. m.*	Salts formed by the union of the acid of ſower whey or lactic acid, with different baſes. Theſe ſalts were unknown before Scheele, and without names until the preſent time. Their properties have as yet been very little examined.

New Names.	**Ancient Names.**
Lactat of alumine. *Lactas aluminoſus.*	
Lactat of ammoniac. *Lactas ammoniacalis.*	
Lactat of antimony. *Lactas ſtibii.*	
Lactat of arſenic. *Lactas arſenicalis.*	
Lactat of barytes. *Lactas barytæ.*	
Lactat of biſmuth. *Lactas biſmuthi.*	
Lactat of cobalt. *Lactas cobalti.*	
Lactat of copper. *Lactas cupri.*	
Lactat of gold. *Lactas auri.*	
Lactat of lead. *Lactas plumbi.*	
Lactat of lime. *Lactas calcareus.*	
Lactat of iron. *Lactas ferri.*	
Lactat of magneſia. *Lactas magneſiæ.*	
Lactat of mangancſe. *Lactas magneſii.*	
Lactat of mercury. *Lactas mercurii.*	
Lactat of molybden. *Lactas molybdeni.*	
Lactat of nickel. *Lactas niccoli.*	

New Names.	Ancient Names.
Lactat of platina. *Lactas platini.*	
Lactat of potaſh. *Lactas potaſſæ.*	
Lactat of ſilver. *Lactas argenti.*	
Lactat of ſoda. *Lactas ſodæ.*	
Lactat of tin. *Lactas ſtanni.*	
Lactat of tunſtein. *Lactas tunſteni.*	
Lactat of zink. *Lactas zinci.*	
Lead. *Plumbum.*	*Lead.* *Saturn.*
Light.	*Light.*
Lime or calcareous earth.	*Calcareous earth.* *Quick-lime.*
Lithiats. *Lithias, tis, ſ. m.*	Salts formed by the combination of the lithic acid, or acid of the ſtone ſometimes generated in the human bladder, with different baſes. This genus of ſalts had no name in the ancient nomenclature, becauſe it was not known before the time of Scheele.
Lithiat of alumine. *Lithias aluminoſus.*	
Lithiat of ammoniac. *Lithias ammoniacalis.*	

New Names.	Ancient Names.
Lithiat of antimony. *Lithias ſtibii.*	
Lithiat of arſenic. *Lithias arſenicalis.*	
Lithiat of barytes. *Lithias baryticus.*	
Lithiat of biſmuth. *Lithias biſmuthi.*	
Lithiat of cobalt. *Lithias cobalti.*	
Lithiat of copper. *Lithias cupri.*	
Lithiat of gold. *Lithias auri.*	
Lithiat of iron. *Lithias ferri.*	
Lithiat of lead. *Lithias plumbi.*	
Lithiat of lime. *Lithias calcareus.*	
Lithiat of magneſia. *Lithias magneſiæ.*	
Lithiat of mangane ſe. *Lithias magneſii.*	
Lithiat of mercury. *Lithias mercurii.*	
Lithiat of molyben. *Lithias molybdeni.*	
Lithiat of nickel. *Lithias niccoli.*	
Lithiat of platina. *Lithias platini.*	
Lithiat of potaſh. *Lithias potaſſæ.*	

New Names.	Ancient Names.
Lithiat of ſilver. *Lithias argenti.*	
Lithiat of ſoda. *Lithias ſodæ.*	
Lithiat of tin. *Lithias ſtanni.*	
Lithiat of tunſtein. *Lithias tunſteni.*	
Lithiat of zink. *Lithias zinci.*	

M.

New Names.	Ancient Names.
Malats. *Malas, tis, ſ. m.*	Salts formed by the union of the malic acid, or acid of apples with different baſes. This genus of ſalts has been without a name in the ancient nomenclature.
Malat of alumine. *Malas aluminoſus.*	
Malat of ammoniac. *Malas ammoniacalis.*	
Malat of antimony. *Malas ſtibii.*	
Malat of arſenic. *Malas arſenicalis.*	
Malat of barytes. *Malas baryticus.*	
Malat of biſmuth. *Malas biſmuthi.*	
Malat of cobalt. *Malas cobalti.*	

Malat

New Names.	**Ancient Names.**
Malat of copper. *Malas cupri.*	
Malat of gold. *Malas auri.*	
Malat of lead. *Malas plumbi.*	
Malat of lime. *Malas calcareus.*	
Malat of iron. *Malas ferri.*	
Malat of magneſia. *Malas magneſiæ.*	
Malat of manganeſe. *Malas magneſii.*	
Malat of mercury. *Malas mercurii.*	
Malat of molybden. *Malas molybdeni.*	
Malat of nickel. *Malas niccoli.*	
Malat of platina. *Malas platini.*	
Malat of potaſh. *Malas potaſſæ.*	
Malat of ſilver. *Malas argenti.*	
Malat of ſoda. *Malas ſodæ.*	
Malat of tin. *Malas ſtanni.*	
Malat of tunſtein. *Malas tunſteni.*	
Malat of zink. *Malas zinci.*	

New Names.	Ancient Names.
Manganeſe. *Magneſium.*	*Regulus of manganeſe.*
Mercury. *Hydrargirum.*	*Mercury.* *Quick-ſilver.*
Molybdats. *Molybdas, tis, s. m.*	Salts formed by the union of the molybdic acid with different baſes. This genus of ſalts was without a name in the ancient nomenclature.
Molybdat of alumine. *Molybdas aluminoſus.*	
Molybdat of ammoniac. *Molybdas ammoniacalis.*	
Molybdat of antimony. *Molybdas ſtibii.*	
Molybdat of arſenic. *Molybdas arſenicalis.*	
Molybdat of barytes. *Molybdas baryticus.*	
Molybdat of biſmuth. *Molybdas biſmuthi.*	
Molybdat of cobalt. *Molybdas cobalti.*	
Molybdat of copper. *Molybdas cupri.*	
Molybdat of gold. *Molybdas auri.*	
Molybdat of iron. *Molybdas ferri.*	
Molybdat of lead. *Molybdas plumbi.*	
Molybdat of lime. *Molybdas calcareous.*	

New Names.	**Ancient Names.**
Molybdat of magneſia. *Molybdas magneſiæ.*	
Molybdat of manganeſe. *Molybdas magneſii.*	
Molybdat of mercury. *Molybdas mercurii.*	
Molybdat of nickel. *Molybdas niccoli.*	
Molybdat of platina. *Molybdas platini.*	
Molybdat of potaſh. *Molybdas potaſſæ.*	
Molybdat of ſilver. *Molybdas argenti.*	
Molybdat of ſoda. *Molybdas ſodæ.*	
Molybdat of tin. *Molybdas ſtanni.*	
Molybdat of tunſtein. *Molybdas tunſteni.*	
Molybdat of zink. *Molybdas zinci.*	
Molybden.	*Regulus of molybden.*
Mucus.	*Mucilage.*
Muriats. *Murias, tis, s. m.*	Salts formed by the union of the muriatic acid with different baſes.
Muriat of alumine. *Murias aluminoſus.*	*Marine alum.* *Argillous marine ſalt.*
Muriat of ammoniac. *Murias ammoniaclis.*	*Sal ammoniac.* *Salmiac.*
Muriat of antimony. *Murias ſtibii.*	*Muriated antimony.*

New Names.	Ancient Names.
Muriat of arſenic. *Murias arſenicalis.*	
Muriat of arſenic, ſublimated. *Murias arſenicalis ſublimatus.*	*Butter of arſenic.*
Muriat of barytes. *Murias baryticus.*	*Barytic marine ſalt.*
Muriat of biſmuth. *Murias biſmuthi.*	*Muriated biſmuth.*
Muriat of biſmuth ſublimated. *Murias biſmuthi ſublimatus.*	*Butter of biſmuth.*
Muriat of cobalt. *Murias cobalti.*	*Sympathetic ink.*
Muriat of copper. *Murias cupri.*	*Muriated copper.*
Muriat of copper, ſublimated ammoniacal. *Murias cupri.*	*Cupreous ammoniacal flowers.*
Muriat of gold. *Murias auri.*	*Regaline ſalt of gold.* *Muriated gold.*
Muriat of iron. *Murias ferri.*	*Muriated iron.* *Marine ſalt of iron.*
Muriat of lead. *Murias plumbi.*	*Muriated lead.* *Plumbum corneum.*
Muriat of iron ſublimated ammoniacal.	*Martial ammoniacal flowers.*
Muriat of lime. *Murias calcareus.*	*Mother ley of ſea-ſalt.* *Calcareous marine ſalt.* *Fixed ſal ammoniac.*
Muriat of magneſia. *Murias calcareus.*	*Marine ſalt having magneſia for baſis.*
Muriat of mangaeſe. *Murias magneſii.*	*Muriated manganeſe.*

New Names.	Ancient Names.
Muriat of mercury, corroſive. *Murias hydrargiri corroſivus.*	*Corroſive ſublimate.* *Super-muriated mercury.*
Muriat of mercury, mild. *Murias hydrargiri dulcis.*	*Mercurius dulcis.* *Sub-muriated mercury.*
Muriat of mercury ſublimated mild. *Murias hydrargiri ſublimatus*	*Sweet mercury ſublimate.* *Aquila alba.* *Sub-muriated mercury ſublimate.*
Muriat of mercury and ammoniac. *Murias hydrargiri et ammoniacalis.*	*Salt of alembroth.*
Muriat of mercury by precipitation. *Murias hydrargiri.*	*Salt of wiſdom.* *White precipitated muriated mercury.*
Muriat of molybden. *Murias molybdeni.*	
Muriat of nickel. *Murias niccoli.*	
Muriat of platina. *Murias platini.*	*Muriated platina.* *Regaline ſalt of platina.*
Muriat of potaſh. *Murias potaſſæ.*	*Sylvius's febrifuge ſalt.* *Regenerated ſea-ſalt.*
Muriat of ſilver. *Murias argenti.*	*Luna cornea.*
Muriat of ſoda. *Murias ſodæ.*	*Sea-ſalt.*
Muriat of ſoda, foſſile. *Murias ſodæ foſſilis.*	*Sal gem.* *Salited foſſile alkali.*
Muriat of tin. *Murias ſtanni.*	*Salt of Jupiter.*
Muriat of tin, concrete. *Murias ſtanni.*	*Solid butter of tin,* of Mr. Beaumé.

New Names.	Ancient Names.
Muriat of tin ſmoking. *Murias ſtanni.*	*Libavius's ſmoking liquor.*
Muriat of tin ſublimated. *Murias ſtanni.*	*Butter of tin.*
Muriat of tunſtein. *Murias tunſteni.*	
Muriat of zink. *Murias zinci.*	*Marine ſalt of zink.* *Muriated zink.*
Muriat of zink ſublimated. *Murias zinci.*	*Butter of zink.*
Muriats oxygenated.	(New combinations of the oxygenated muriatic acid with potaſh and ſoda, diſcovered by Mr. Bertholet.)
Muriat of potaſh, oxygenated. *Murias oxygenatus potaſſæ.*	
Muriat of ſoda, oxygenated. *Murias oxygenatus ſodæ.*	

N.

Nitrats. *Nitras, tis, s. m.*	Salts formed by the union of the nitric acid with different baſes.
Nitrat of alumine. *Nitras aluminoſus.*	*Nitrous alum.* *Argilaceous nitre.*
Nitrat of ammoniac. *Nitras ammoniacalis.*	*Nitrous ſal ammoniac.* *Ammoniacal nitre.*
Nitrat of antimony. *Nitras ſtibii.*	
Nitrat of arſenic. *Nitras arſenicalis.*	*Nitre of arſenic.*
Nitrat of barytes. *Nitras baryticus.*	*Nitrated barytes.* *Nitre of heavy earth.*

Nitrat

New Names.	Ancient Names.
Nitrat of biſmuth. *Nitras biſmuthi.*	*Nitre of biſmuth.*
Nitrat of cobalt. *Nitras cobalti.*	*Nitre of cobalt.*
Nitrat of copper. *Nitras cupri.*	*Nitre of copper.*
Nitrat of gold. *Nitras auri.*	
Nitrat of iron. *Nitras ferri.*	*Nitre of iron.* *Martial nitre.*
Nitrat of lead. *Nitras plumbi.*	*Nitre of lead.* *Nitre of ſaturn.*
Nitrat of lime. *Nitras calcareus.*	*Calcareous nitre.* *Mother ley of nitre.*
Nitrat of magneſia. *Nitras magneſiæ.*	*Nitre of magneſia.* *Magneſian nitre.*
Nitrat of manganeſe. *Nitras magneſii.*	*Nitre of manganeſe.* *Nitrated manganeſe.*
Nitrat of mercury. *Nitras hydrargiri.*	*Nitre of mercury.* *Mercurial nitre.*
Nitrat of mercury in diſſolution. *Nitras hydrargiri.*	*Solution of mercury.*
Nitrat of molybden. *Nitras molybdeni.*	
Nitrat of nickel. *Nitras niccoli.*	*Nitrated nickel.* *Nitre of nickel.*
Nitrat of platina. *Nitras platini.*	
Nitrat of potaſh, or nitre. *Nitras potaſſæ, vel nitrum.*	*Nitre, ſalt-petre.* *Sal prunel.* *Nitrated vegetable alkali.*
Nitrat of ſilver. *Nitras argenti.*	*Nitre of ſilver.* *Lunar cryſtals.*

New Names.	Ancient Names.
Nitrat of ſilver, molten. *Nitras argenti fuſus.*	*Lunar cauſtic.*
Nitrat of ſoda. *Nitras ſodæ.*	*Cubic nitre.* *Rhomboidal nitre.*
Nitrat of tin. *Nitras ſtanni.*	*Nitre of tin.* *Stanno-nitrous ſalt.*
Nitrat of tunſtein. *Nitras tunſteni.*	
Nitrat of zink. *Nitras zinci.*	*Nitre of zink.*
Nitrites. *Nitris, tis, ſ. m.*	Salts formed by the combination of *nitrous* acid[*] with different baſes. This genus of ſalt had no name in the ancient nomenclature, and was not known before the late diſcoveries.
Nitrite of alumine. *Nitris aluminoſus.*	
Nitrite of ammoniac. *Nitris ammoniacalis.*	
Nitrite of antimony. *Nitris ſtibii.*	
Nitrite of arſenic. *Nitris arſenicalis.*	
Nitrite of barytes. *Nitris baryticus.*	
Nitrite of biſmuth. *Nitris biſmuthi.*	
Nitrite of cobalt. *Nitris cobalti.*	

Nitrite

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[*] That is to ſay, by an acid of nitre containing leſs oxygen than that which we have denominated *nitric* acid, and which forms the *nitrats*.

New Names.	Ancient Names.
Nitrite of copper. *Nitris cupri,*	
Nitrite of gold. *Nitris auri.*	
Nitrite of iron. *Nitris ferri.*	
Nitrite of lead. *Nitris plumbi.*	
Nitrite of lime. *Nitris calcareus.*	
Nitrite of magneſia. *Nitris magneſiæ.*	
Nitrite of manganeſe. *Nitris magneſii.*	
Nitrite of mercury. *Nitris hydrargiri.*	
Nitrite of molybden. *Nitris molybdeni,*	
Nitrite of nickel. *Nitris niccoli.*	
Nitrite of platina. *Nitris platini.*	
Nitrite of potaſh. *Nitris potaſſæ.*	
Nitrite of ſilver. *Nitris argenti,*	
Nitrite of ſoda. *Nitris ſodæ.*	
Nitrite of tin. *Nitris ſtanni.*	
Nitrite of tunſtein, *Nitris tunſteni.*	
Nitrite of zink. *Nitris zinci,*	

Oxalat

O.

New Names.	Ancient Names.
Oxalats. *Oxalas, tis, s. m.*	Salts formed by the combination of the oxalic acid with different baſes. The greater number of theſe ſalts have not been named in the old nomenclature.
Oxalat acidulous of ammoniac. *Oxalas acidulus ammoniacalis*	
Oxalat acidulous of potaſh. *Oxalas acidulus potaſſæ,*	*Common ſalt of ſorrel.*
Oxalat acidulous of ſoda. *Oxalas acidulus ſodæ.*	
Oxalat of alumine. *Oxalas aluminoſus.*	
Oxalat of ammoniac. *Oxalas ammoniacalis,*	
Oxalat of antimony. *Oxalas ſtibii.*	
Oxalat of arſenic. *Oxalas arſenicalis,*	
Oxalat of barytes. *Oxalas baryticus,*	
Oxalas of biſmuth. *Oxalas biſmuthi,*	
Oxalat of cobalt, *Oxalas cobalti.*	
Oxalat of copper, *Oxalas cupri.*	
Oxalat of gold. *Oxalas auri.*	

New Names.	**Ancient Names.**
Oxalat of iron.	
Oxalas ferri.	
Oxalat of lead.	
Oxalas plumbi.	
Oxalat of lime.	
Oxalas calcareus.	
Oxalat of magneſia.	
Oxalas magneſiæ.	
Oxalat of manganeſe.	
Oxalas magneſii.	
Oxalat of mercury.	
Oxalas hydrargiri.	
Oxalat of molybden.	
Oxalas molybdeni.	
Oxalat of nickel.	
Oxalas niccoli.	
Oxalat of platina.	
Oxalas platini.	
Oxalat of potaſh.	
Oxalas potaſſæ.	
Oxalat of ſilver.	
Oxalas argenti.	
Oxalat of ſoda.	
Oxalas ſodæ.	
Oxalat of tin.	
Oxalas ſtanni.	
Oxalat of tunſtein.	
Oxalas tunſteni.	
Oxalat of zink.	
Oxalas zinci.	
Oxyd arſenical of potaſh.	*Liver of arſenic.*
Oxydum arſenicale potaſſæ.	
Oxyd white of arſenic.	*White arſenic.*
Oxydum arſenici album.	*Calx of arſenic.*

Oxyd

New Names.	Ancient Names.
Oxyd of antimony by the muriatic acid and nitric acid. *Oxydum ſtibii.*	*Mineral bezoar.*
Oxyd of antimony, white, by nitre. *Oxydum ſtibii album nitro-confectum.*	*Diaphoretic antimony.* *Ceruſſe of antimony.* *Kerkringius's pearly matter.*
Oxyd of antimony white ſublimated. *Oxydum ſtibii album ſublimatum.*	*Snow of antimony.* *Flowers of antimony.* *Argentine flowers of regulus of antimony.*
Oxyd of antimony by the muriatic acid. *Oxydum ſtibii acido muriatico confectum.*	*Powder of algaroth.*
Oxyd of antimony ſulphurated. *Oxydum ſtibii ſulphuratum.*	*Liver of antimony.*
Oxyd of antimony ſulphurated ſemi-vitreous. *Oxydum ſtibii ſulphuratum ſemi-vitreum.*	*Crocus metallorum.*
Oxyd of antimony ſulphurated orange-colored. *Oxydum ſtibii ſulphuratum aurantiacum.*	*Dealcaliſed ſulphur-caline antimony.* *Golden ſulphur of antimony.* *Precipitated ſulphur of antimony.*
Oxyd of antimony, red ſulphurated. *Oxydum ſtibii ſulphuratum rubrum.*	*Kermes mineral.* *Sulphur-caline antimony.*
Oxyd of antimony ſulphurated vitreous. *Oxydum ſtibii ſulphuratum vitreum.*	*Glaſs of antimony.*

Oxyd

New Names.	**Ancient Names.**
Oxyd of antimony, brown vitreous ſulphurated. *Oxydum ſtibii ſulphuratum vitreum fuſcum.*	
Oxyd of arſenic, white ſublimated. *Oxydum arſenici album ſublimatum.*	*Flowers of arſenic.*
Oxyd of arſenic, yellow ſulphurated. *Oxydum arſenici ſulphuratum luteum.*	*Orpiment.*
Oxyd of arſenic, red ſulphurated. *Oxydum arſenici ſulphuratum rubrum.*	*Red arſenic.* *Realgar.*
Oxyd of biſmuth, white, by the nitric acid. *Oxydum biſmuthi album acido nitrico confectum.*	*Magiſtery of biſmuth.* *Spaniſh white.*
Oxyd of biſmuth ſublimated. *Oxydum biſmuthi ſublimatum.*	*Flowers of biſmuth.*
Oxyd of cobalt, grey, with ſilice. *Oxydum cobalti cinereum cum ſilice.*	
Oxyd of cobalt, vitreous. *Oxydum cobalti vitreum.*	*Azure.* *Smalt.*
Oxyd of copper, green. *Oxydum cupri viride.*	*Verdegris.* *Ruſt of copper.*
Oxyd of gold, ammoniacal. *Oxydum auri ammoniacle.*	*Aurum fulminans.*
Oxyd of gold by tin. *Oxydum auri per ſtannum.*	*Precipitate of gold by tin.* *Caſſius's purple.*

New Names.	**Ancient Names.**
Oxyds of iron. *Oxyda ferri.*	*Saffrons of mars.*
Oxyd of iron, brown, *Oxydum ferri fuſcum,*	*Aſtringent ſaffron of mars.*
Oxyd of iron, yellow, *Oxydum ferri luteum.*	*Ochre.*
Oxyd of iron, black. *Oxydum ferri nigrum,*	*Æthiops of iron.*
Oxyd of iron, red. *Oxydum ferri rubrum.*	*Colcothar of vitriol.*
Oxyds of lead. *Oxyda plumbi.*	*Calces of lead.*
Oxyd of lead, white, by the acetous acid. *Oxydum plumbi album per acidum acetoſum.*	*White lead.*
Oxyd of lead, ſemi-vitreous; or litharge. *Oxydum plumbi ſemivitreum.*	*Litharge.*
Oxyd of lead, yellow. *Oxydum plumbi luteum.*	*Maſſicot.*
Oxyd of lead, red; or minium. *Oxydum plumbi rubrum.*	*Minium.* *Red lead.*
Oxyd of manganeſe, white. *Oxydum magneſii album.*	*White calx of manganeſe.*
Oxyd of manganeſe, black. *Oxydum magneſii nigrum.*	*Black magneſia.*
Oxyd of mercury, yellow; by the nitric acid. *Oxydum hydrargiri luteum acido nitrico confectum.*	*Nitrous turbith.*
Oxyd of mercury, yellow; by the ſulphuric acid. *Oxydum hydrargiri luteum acido ſulphurico confectum.*	*Turbith mineral,* *Yellow precipitate.*

New Names.	Ancient Names.
Oxyd of mercury, blackiſh. *Oxydum hydrargiri nigrum.*	*Æthiops per ſe.*
Oxyd of mercury, red; by the nitric acid. *Oxydum hydrargiri rubrum acido nitrico confectum.*	*Red precipitate.*
Oxyd of mercury, red; by fire. *Oxydum hydrargiri rubrum per ignem.*	*Mercurius precipitatus per ſe.*
Oxyd of mercury, ſulphurated black. *Oxydum hydrargiri ſulphuratum nigrum.*	*Æthiops mineral.*
Oxyd of mercury ſulphurated red. *Oxydum hydrargiri ſulphuratum rubrum.*	*Cinnabar.*
Oxyd of tin, grey. *Oxydum ſtanni cinereum.*	
Oxyd of tin, ſublimated. *Oxydum ſtanni ſublimatum.*	*Flowers of tin.*
Oxyd of zink ſublimated. *Oxydum zinci ſublimatum.*	*Flowers of zink.* *Pompholix.*
Oxyds metallic. *Oxyda metallica.*	*Calces of metals.*
Oxyds, ſublimated metallic. *Oxyda metallica ſublimata.*	*Metallic flowers.*
Oxygen. *Oxygenium.*	*Oxygen.* *Baſis of vital air.* *Acidifying principle.* *Empyreal principle.* *Sorbile principle.*

P.

New Names.	Ancient Names.
hoſphats. *Phoſphas, tis, ſ. m.*	Salts formed by the union of the phoſphoric acid with different baſes.
Phoſphat of alumine. *Phoſphas aluminoſus.*	
Phoſphat of ammoniac. *Phoſphas ammoniacalis.*	*Phoſphorical ammoniac.* *Ammoniacal phoſphate.*
Phoſphat of antimony. *Phoſphas ſtibii.*	
Phoſphat of arſenic. *Phoſphas arſenicalis.*	
Phoſphat of barytes. *Phoſphas baryticus.*	
Phoſphat of biſmuth. *Phoſphas biſmuthi.*	
Phoſphat of cobalt. *Phoſphas cobalti.*	
Phoſphat of copper. *Phoſphas cupri.*	
Phoſphat of gold. *Phoſphas auri.*	
Phoſphat of iron. *Phoſphas ferri.*	*Syderite.* *Marſh iron ore.*
Phoſphat of lead. *Phoſphas plumbi.*	
Phoſphat of lime. *Phoſphas calcareus.*	*Earth of bones.* *Animal earth.*
Phoſphat of magneſia. *Phoſphas magneſiæ.*	*Phoſphate of magneſia.*
Phoſphat of manganeſe. *Phoſphas magneſii.*	

Phoſphat

New Names.	**Ancient Names.**
Phoſphat of mercury. *Phoſphas mercurii.*	*Roſy precipitate of mercury.*
Phoſphat of molybden. *Phoſphas molybdeni.*	
Phoſphat of nickel. *Phoſphas niccoli.*	
Phoſphat of platina. *Phoſphas platini.*	
Phoſphat of potaſh. *Phoſphas potaſſæ.*	
Phoſphat of ſilver. *Phoſphas argenti.*	
Phoſphat of ſoda. *Phoſphas ſodæ.*	
Phoſphat of ſoda and ammoniac. *Phoſphas ſodæ et ammoniacalis.*	*Native ſalt of urine.* *Fuſible ſalts of urine.*
Phoſphat ſurſaturated with ſoda. *Phoſphas ſuperſaturatus ſodæ.*	*Wonderful pearly ſalt.*
Phoſphat of tin. *Phoſphas ſtanni.*	
Phoſphat of tunſtein. *Phoſphas tunſteni.*	
Phoſphat of zink. *Phoſphas zinci.*	
Phoſphites. *Phoſphis, tis, s. m.*	Salts formed by the combination of the phoſphorous acid with different baſes.
Phoſphite of alumine. *Phoſphis aluminoſus.*	
Phoſphite of ammoniac. *Phoſphis ammoniacalis.*	

Phoſphite

New Names.	**Ancient Names.**
Phoſphite of antimony.	
Phoſphis ſtibii.	
Phoſphite of arſenic.	
Phoſphis arſenicalis.	
Phoſphite of barytes.	
Phoſphis baryticus.	
Phoſphite of biſmuth.	
Phoſphis biſmuthi.	
Phoſphite of cobalt.	
Phoſphis cobalti.	
Phoſphite of copper.	
Phoſphis cupri.	
Phoſphite of gold.	
Phoſphis auri.	
Phoſphite of iron.	
Phoſphis ferri.	
Phoſphite of lead.	
Phoſphis plumbi.	
Phoſphite of lime.	
Phoſphis calcareus.	
Phoſphite of magneſia.	
Phoſphis magneſiæ.	
Phoſphite of mangaueſe.	
Phoſphis magneſii.	
Phoſphite of mercury.	
Phoſphis hydrargiri.	
Phoſphite of molybden.	
Phoſphis molybdeni.	
Phoſphite of nickel.	
Phoſphis niccoli.	
Phoſphite of platina.	
Phoſphis platini.	
Phoſphite of potaſh.	
Phoſphis potaſſæ.	

New Names.	Ancient Names.
Phoſpite of ſilver. *Phoſphis argenti.*	
Phoſphite of ſoda. *Phoſphis ſodæ.*	
Phoſphite of tin. *Phoſphis ſtanni.*	
Phoſphite of tunſtein. *Phoſphis tunſteni.*	
Phoſphite of zink. *Phoſphis zinci.*	
Phoſphorus. *Phoſphorum.*	*Phoſphorus of Kunkel.*
Phoſphuret. *Phoſphoretum.*	Combination of phoſphorus not oxygenated, with different baſes.
Phoſphuret of copper. *Phoſphoretum cupri.*	
Phoſphuret of iron. *Phoſphoretum ferri.*	*Syderum*, of Bergman. *Syderetete*, of Mr. de Morveau. *Regulus of ſyderite.*
Pyro-lignites. *Pyro-lignis, tis, s. m.*	Salts formed by the union of the pyro-lignic acid with different baſes. Theſe ſalts had no names in the ancient nomenclature.
Pyrolignite of alumine. *Pyrolignis aluminoſus.*	
Pyrolignite of ammoniac. *Pyrolignis ammoniacalis.*	
Pyrolignite of antimony. *Pyrolignis ſtibii.*	
Pyrolignite of arſenic. *Pyrolignis arſenicalis.*	

New Names.	**Ancient Names.**
Pyrolignite of barytes. *Pyrolignis barytitus.*	
Pyrolignite of biſmuth. *Pyrolignis biſmuthi.*	
Pyrolignite of cobalt. *Pyrolignis cobalti.*	
Pyrolignite of copper. *Pyrolignis cupri.*	
Pyrolignite of gold. *Pyrolignis auri.*	
Pyrolignite of iron. *Pyrolignis ferri.*	
Pyrolignite of lead. *Pyrolignis plumbi.*	
Pyrolignite of lime. *Pyrolignis calcareus.*	
Pyrolignite of magneſia. *Pyrolignis magneſiæ.*	
Pyrolignite of mangane ſe. *Pyrolignis magneſii.*	
Pyrolignite of mercury. *Pyrolignis mercurii.*	
Pyrolignite of molybden. *Pyrolignis molybdeni.*	
Pyrolignite of nickel. *Pyrolignis niccoli.*	
Pyrolignite of platina. *Pyrolignis platini.*	
Pyrolignite of potaſh. *Pyrolignis potaſſæ.*	
Pyrolignite of ſilver. *Pyrolignis argenti.*	
Pyrolignite of ſoda. *Pyrolignis ſodæ.*	

New Names.	Ancient Names.
Pyrolignite of tin. *Pyrolignis ſtanni.*	
Pyrolignite of tunſtein. *Pyrolignis tunſteni.*	
Pyrolignite of zink. *Pyrolignis zinci.*	
Pyromucites. *Pyromucis, tis, s. m.*	Salts formed by the union of the pyro-mucic acid with different baſes. This genus of ſalts had no name in the old nomenclature.
Pyromucite of alumine. *Pyromucis aluminoſus.*	
Pyromucite of ammoniac. *Pyromucis ammoniacalis.*	
Pyromucite of antimony. *Pyromucis ſtibii.*	
Pyromucite of arſenic. *Pyromucis arſenicalis.*	
Pyromucite of barytes. *Pyromucis baryticus.*	
Pyromucite of biſmuth. *Pyromucis biſmuthi.*	
Pyromucite of cobalt. *Pyromucis cobalti.*	
Pyromucite of copper. *Pyromucis cupri.*	
Pyromucite of gold. *Pyromucis auri.*	
Pyromucite of iron. *Pyromucis ferri.*	
Pyromucite of lead. *Pyromucis plumbi.*	

New Names.	Ancient Names.
Pyromucite of lime. *Pyromucis calcareus.*	
Pyromucite of magneſia. *Pyromucis magneſiæ.*	
Pyromucite of manganeſe. *Pyromucis magneſii.*	
Pyromucite of mercury. *Pyromucis mercurii.*	
Pyromucite of molybden. *Pyromucis molybdeni,*	
Pyromucite of nickel, *Pyromucis niccoli,*	
Pyromucite of platina, *Pyromucis platini.*	
Pyromucite of potaſh. *Pyromucis potaſſæ.*	
Pyromucite of ſilver, *Pyromucis argenti,*	
Pyromucite of ſoda, *Pyromucis ſodæ.*	
Pyromucite of tin. *Pyromucis ſtanni.*	
Pyromucite of tunſtein, *Pyromucis tunſteni.*	
Pyromucite of zink, *Pyromucis zinci,*	
Pyrotartrites, *Pyrotartris, tis, ſ. m,*	Salts formed by the combination of the pyrotartareous acid with different baſes.
Pyrotartrite of alumine, *Pyrotartris aluminoſus.*	
Pyrotartrite of ammoniac. *Pyrotartris ammoniaci,*	

New Names.	Ancient Names.
Pyrotartrite of antimony. *Pyrotartris ſtibii.*	
Pyrotartrite of arſenic. *Pyrotartris arſenici.*	
Pyrotartrite of barytes. *Pyrotartris baryticus.*	
Pyrotartrite of biſmuth. *Pyrotartris biſmuthi.*	
Pyrotartrite of cobalt. *Pyrotartris cobalti.*	
Pyrotartrite of copper. *Pyrotartris cupri.*	
Pyrotartrite of gold. *Pyrotartris auri.*	
Pyrotartrite of iron. *Pyrotartris ferri.*	
Pyrotartrite of lead. *Pyrotartris calcareus.*	
Pyrotartrite of lime. *Pyrotartris calcareus.*	
Pyrotartrite of magneſia. *Pyrotartris magneſiæ.*	
Pyrotartrite of mangaueſe. *Pyrotartris magneſii.*	
Pyrotartrite of mercury. *Pyrotartris hydrargiri.*	
Pyrotartrite of molybden. *Pyrotartris molybdeni.*	
Pyrotartrite of nickel. *Pyrotartris niccoli.*	
Pyrotartrite of platina. *Pyrotartris platini.*	
Pyrotartrite of potaſh. *Pyrotartris potaſſæ.*	

New Names.	Ancient Names.
Pyrotartrite of ſilver. *Pyrotartris argenti.*	
Pyrotartrite of ſoda. *Pyrotartaris ſodæ.*	
Pyrotartrite of tin. *Pyrotartris ſtanni.*	
Pyrotartrite of tunſtein. *Pyrotartris tunſteni.*	
Pyrotartrite of zink. *Pyrotartris zinci.*	
Platina. *Platina.*	*Juan blanca.* *Platina.* *White gold.* *Platina del pinto.*
Potaſh. *Potaſſa, æ.*	*Cauſtic vegetable fixed alkali.*
Potaſh molten. *Potaſſa fuſa.*	*Common cauſtic. Potential cautery.* *Infernal or ſeptic ſtone.*
Potaſh, ſiliciated; in liquidity. *Potaſſa ſilicea fluida.*	
Pruſſiats. *Pruſſias, tis, ſ. m.*	Salts formed by the union of the pruſſic acid, or coloring matter of Pruſſian blue, with different baſes. This genus of ſalts had no name in the old nomenclature.
Pruſſiat of alumine. *Pruſſias aluminoſus.*	
Pruſſiat of ammoniac. *Pruſſias ammoniacalis.*	
Pruſſiat of antimony. *Pruſſias antimonii.*	

Pruſſiat

New Names.	Ancient Names.
Pruſſiat of ſilver. *Pruſſias arſenicalis.*	
Pruſſiat of barytes. *Pruſſias baryticus.*	
Pruſſiat of biſmuth. *Pruſſias biſmuthi.*	
Pruſſiat of cobalt. *Pruſſias cobalti.*	
Pruſſiat of copper. *Pruſſias cupri.*	
Pruſſiat of gold. *Pruſſias auri.*	
Pruſſiat of iron. *Pruſſias ferri.*	*Pruſſian blue.* *Berlin blue.*
Pruſſiat of lead. *Pruſſias plumbi.*	
Pruſſiat of lime. *Pruſſias calcareus.*	*Calcareous pruſſiate.* *Lime-water of Pruſſian blue.*
Pruſſiat of magneſia. *Pruſſias magneſiæ.*	
Pruſſiat of mangaeſe. *Pruſſias magneſii.*	
Pruſſiat of mercury. *Pruſſias hydrargiri.*	
Pruſſiat of molybden. *Pruſſias molybdeni.*	
Pruſſiat of nickel. *Pruſſias niccoli.*	
Pruſſiat of platina. *Pruſſias platini.*	
Pruſſiat of potaſh. *Pruſſias potaſſæ.*	Liquor ſaturated with the coloring matter of Pruſſian blue.

New Names.	Ancient Names.
Pruſſiat of potaſh, ſaturated ferruginous. *Pruſſias potaſſæ ferruginoſus ſaturatus.*	*Pruſſian alkali.*
Pruſſiat of potaſh ferruginous not ſaturated. *Pruſſias potaſſæ ferrugineus non ſaturatus.*	*Phlogiſticated alkali.*
Pruſſiat of ſilver. *Pruſſias argenti.*	
Pruſſiat of ſoda. *Pruſſias ſodæ.*	
Pruſſiat of tin. *Pruſſias ſtanni.*	
Pyrophore of Homberg. *Pyrophorum Hombergii.*	*Pyrophore of Homberg.*
R.	
Reſins. *Reſinæ.*	*Reſins.*
S.	
Saccholats. *Saccholas, tis, s. m.*	Salts formed by the combination of the ſaccho-lactic acid with different baſes. This genus of ſalts had no name in the ancient nomenclature.
Saccholat of alumine. *Saccholas aluminoſus.*	
Saccholat of ammoniac. *Saccholas ammoniacalis.*	

New Names.	**Ancient Names.**
Saccholat of antimony.	
Saccholas ſtibii.	
Saccholat of arſenic.	
Saccholas arſenicalis.	
Saccholat of barytes.	
Saccholas baryticus.	
Saccholat of biſmuth.	
Saccholas biſmuthi.	
Saccholat of cobalt.	
Saccholas cobalti.	
Saccholat of copper.	
Saccholas cupri.	
Saccholat of gold.	
Saccholas auri.	
Saccholat of iron.	
Saccholas ferri.	
Saccholat of lead.	
Saccholas plumbi.	
Saccholat of lime.	
Saccholas calcareus.	
Saccholat of magneſia.	
Saccholas magneſiæ.	
Saccholat of manganeſe.	
Saccholas magneſii.	
Saccholat of mercury.	
Saccholas hydrargiri.	
Saccholat of molybden.	
Saccholas molybdeni.	
Saccholat of nickel.	
Saccholas niccoli.	
Saccholat of platina.	
Saccholas platini.	
Saccholat of potaſh.	
Saccholas potaſſæ.	

New Names.	Ancient Names.
Saccholat of ſilver. *Saccholas argenti.*	
Saccholat of ſoda. *Saccholas ſodæ.*	
Saccholat of tin. *Saccholas ſtanni.*	
Saccholat of tunſtein. *Saccholas tunſteni.*	
Saccholat of zink. *Saccholas zinci.*	
Saponuls. *Saponuli.*	Combinations of the volatile or eſſential oils with different baſes.
Saponuls acid.	Combinations of the volatile or eſſential oils with the different acids.
Saponuls metallic. *Saponulli metallici.*	Soaps compoſed of the eſſential oils united to metallic ſubſtances.
Saponul of alumine. *Saponulus aluminoſus.*	Soap made of eſſential oil united to the baſis of alum.
Saponul ammoniacal. *Saponulus ammoniacalis.*	Soap made of eſſential oil united to the volatile alkali.
Saponul of barytes. *Saponulus barytæ.*	Soap made of eſſential oil united to barytes.
Saponul of lime. *Saponulus calcareus.*	Soap made of eſſential oil united to lime.
Saponul of potaſh. *Saponulus potaſſæ.*	Soap compoſed of eſſential oil united to vegetable fixed alkali, or *Starkey's ſoap.*
Saponul of ſodæ. *Saponulus ſodæ.*	Soap compoſed of eſſential oil united to mineral fixed alkali.

New Names.	Ancient Names.
Sebats. *Sebas, tis, s. m.*	Salts formed by the combination of the acid of fat with different baſes. Theſe ſalts had no names in the ancient nomenclature.
Sebat of alumine. *Sebas aluminoſus.*	
Sebat of ammoniac. *Sebas ammoniacalis.*	
Sebat of antimony. *Sebas ſtibii.*	
Sebat of arſenic. *Sebas arſenicalis.*	
Sebat of barytes. *Sebas baryticus.*	
Sebat of biſmuth. *Sebas biſmuthi.*	
Sebat of cobalt. *Sebas cobalti.*	
Sebat of copper. *Sebas cupri.*	
Sebat of gold. *Sebas auri.*	
Sebat of iron. *Sebas ferri.*	
Sebat of lead. *Sebas plumbi.*	
Sebat of lime. *Sebas calcareus.*	
Sebat of magneſia. *Sebas magneſiæ.*	
Sebat of mangeneſe. *Sebas magneſii.*	

New Names.	Ancient Names.
Sebat of mercury. *Sebas hydrargiri.*	
Sebat of molybden. *Sebas molybdeni.*	
Sebat of nickel. *Sebas niccoli.*	
Sebat of platina. *Sebas platini.*	
Sebat of potaſh. *Sebas potaſſæ.*	
Sebat of ſilver. *Sebas argenti.*	
Sebat of ſoda. *Sebas ſodæ.*	
Sebat of tin. *Sebas ſtanni.*	
Sebat of tunſtein. *Sebas tunſteni.*	
Sebat of zink. *Sebas zinci.*	
Silice, or ſiliceous earth. *Silica, terra ſilicea.*	*Siliceous earth.*
Soda. *Soda.*	*Cauſtic ſoda.* *Marine alkali.* *Mineral alkali.*
Soaps. *Sapones.*	Combinations of unctuous, or fixed oils, with different baſes
Soaps acid. *Sapones acidi.*	Combinations of unctuous, or fixed oils, with different acids
Soaps metallic. *Sapones metallici.*	Combinations of unctuous, or fixed oils, with metallic ſubſtances.

Soap

New Names.	Ancient Names.
Soap of alumine. *Sapo aluminoſus.*	Soap compoſed of unctuous oil united to the baſis of alum.
Soap of ammoniac, or ammoniacal. *Sapo ammoniacalis.*	Soap compoſed of unctuous oil united to volatile alkali.
Soap of barytes. *Sapo baryticus.*	Soap compoſed of unctuous oil united to barytes.
Soap of lime. *Sapo calcareus.*	Soap compoſed of unctuous oil united to lime.
Soap of magneſia. *Sapo magneſiæ.*	Soap compoſed of unctuous oil united to magneſia.
Soap of potaſh. *Sapo potaſſæ.*	Soap compoſed of unctuous oil united to vegetable fixed alkali.
Soap of ſoda. *Sapo ſodæ.*	Soap compoſed of unctuous oil united to mineral fixed alkali.
Succinats. *Succinas, tis, s. m.*	Salts formed by the combination of the acid of amber or ſuccinic acid with different baſes.
Succinat of alumine. *Succinas aluminoſus.*	
Succinat of ammoniac. *Succinas ammoniacalis.*	
Succinat of antimony. *Succinas ſtibii.*	
Succinat of arſenic. *Succinas arſenicalis.*	
Succinat of barytes. *Succinas baryticus.*	
Succinat of biſmuth. *Succinas biſmuthi.*	

New Names.	Ancient Names.
Succinat of cobalt. *Succinas cobalti.*	
Succinat of copper. *Succinas cupri.*	
Succinat of gold. *Succinas auri.*	
Succinat of iron. *Succinas ferri.*	
Succinat of lead. *Succinas plumbi.*	
Succinat of lime. *Succinas calcareus.*	
Succinat of magneſia. *Succinas magneſii.*	
Succinat of manganeſe. *Succinas magneſii.*	
Succinat of mercury. *Succinas hydrargiri.*	
Succinat of molybden. *Succinas molybdeni.*	
Succinat of nickel. *Succinas niccoli.*	
Succinat of platina. *Succinas platini.*	
Succinat of potaſh. *Succinas potaſſæ.*	
Succinat of ſilver. *Succinas argenti.*	
Succinat of ſoda. *Succinas ſodæ.*	
Succinat of tin. *Succinas ſtanni.*	
Succinat of tunſtein. *Succinas tunſteni.*	

New Names.	**Ancient Names.**
Succinat of zink. *Succinas zinci.*	
Succinum, or amber. *Succinum.*	*Yellow amber.*
Sugar. *Saccharum.*	*Sugar.*
Sugar cryſtallized. *Saccharum cryſtalliſatum.*	*Sugar candied.*
Sugar of milk. *Saccharum lactis.*	*Sugar of milk.* *Salt of milk.*
Sulphats. *Sulphas, tis, s. m.*	Salts formed by the combination of the ſulphuric acid with different baſes.
Sulphat of alumine. *Sulphas aluminoſus.*	*Alum.* *Super-vitriolated clay.*
Sulphat of ammoniac. *Sulphas ammoniacalis.*	*Glauber's ſecret ammoniacal ſalt.* *Ammoniacal vitriol.*
Sulphat of antimony. *Sulphas ſtibii.*	*Vitriol of antimony.*
Sulphat of arſenic. *Sulphas arſenicalis.*	*Vitriol of arſenic.*
Sulphat of barytes. *Sulphas baryticus.*	*Ponderous ſpar.* *Baroſelenite.*
Sulphat of biſmuth. *Sulphas biſmuthi.*	*Vitriol of biſmuth.*
Sulphat of cobalt. *Sulphas cobalti.*	*Vitriol of cobalt.*
Sulphat of copper. *Sulphas cupri.*	*Roman vitriol. Blue ſtone.* *Super-vitriolated copper.*
Sulphat of iron. *Sulphas ferri.*	*Green copperas.* *Salt of ſteel.* *Super-vitriolated iron.*
Sulphat of gold. *Sulphas auri.*	

Sulphat

New Names.	Ancient Names.
Sulphat of lead. *Sulphas plumbi.*	*Vitriol of lead.*
Sulphat of lime. *Sulphas calcareus.*	*Vitriolated lime.* *Selenite.* *Gypſum.* *Plaſter of Paris.*
Sulphat of magneſia. *Sulphas magneſiæ.*	*Vitriolated magneſia.* *Bitter purging ſalt.* *Sedlitz ſalt.* *Epſom ſalt.* *Seydſchutz ſalt.*
Sulphat of manganeſe. *Sulphas magneſii.*	*Vitriol of manganeſe.*
Sulphat of mercury. *Sulphas hydrargiri.*	*Super-vitriolated mercury.* *Vitriol of mercury.*
Sulphat of molybden. *Sulphas molybdeni.*	
Sulphat of nickel. *Sulphas niccoli.*	
Sulphat of platina. *Sulphas platini.*	
Sulphat of potaſh. *Sulphas potaſſæ.*	*Vitriolated vegetable alkali.* *Sal enixum de duobus.* *Vitriolated tartar.* *Arcanum duplicatum.* *Glaſer's ſal polychreſt.* *Vitriol of potaſh.*
Sulphat of ſilver. *Sulphas argenti.*	*Vitriol of ſilver.*
Sulphat of ſoda. *Sulphas ſodæ.*	*Glauber's ſalt.* *Vitriol of ſoda.*
Sulphat of tin. *Sulphas ſtanni:*	*Vitriol of tin.*
Sulphat of tunſtein. *Sulphas tunſteni.*	

New Names.	Ancient Names.
Sulphat of zink. *Sulphas zinci.*	*White vitriol or copperas.* *Vitriol of zink.* *Vitriol of Goſlar.*
Sulphite. *Sulphis, tis, s. m.*	Salt formed by the combination of the ſulphureous acid with different baſes.
Sulphite of alumine. *Sulphis aluminoſus.*	
Sulphite of ammoniac. *Sulphis ammoniacalis.*	
Sulphite of antimony. *Sulphis ſtibii.*	
Sulphite of arſenic. *Sulphis arſenicalis,*	
Sulphite of barytes, *Sulphis baryticus.*	
Sulphite of biſmuth, *Sulphis biſmuthi.*	
Sulphite of cobalt, *Sulphis cobalti.*	
Sulphite of copper, *Sulphis cupri.*	
Sulphite of gold, *Sulphis auri.*	
Sulphite of iron. *Sulphis ferri.*	
Sulphite of lead. *Sulphis plumbi.*	
Sulphite of lime. *Sulphis calcareus,*	
Sulphite of magneſia. *Sulphis magneſiæ.*	
Sulphite of manganeſe. *Sulphis magneſii.*	

New Names.	Ancient Names.
Sulphite of mercury. *Sulphis hydrargiri.*	
Sulphite of molybden. *Sulphis molybdeni.*	
Sulphite of nickel. *Sulphis niccoli.*	
Sulphite of platina. *Sulphis platini.*	
Sulphite of potaſh. *Sulphis potaſſæ.*	*Stahl's ſulphureous ſalt.*
Sulphite of ſilver. *Sulphis argenti.*	
Sulphite of ſoda. *Sulphis ſodæ.*	
Sulphite of tin. *Sulphis ſtanni.*	
Sulphite of tunſtein. *Sulphis tunſteni.*	
Sulphite of zink. *Sulphis zinci.*	
Sulphur. *Sulphur.*	*Sulphur.*
Sulphur ſublimated. *Sulphur ſublimatum.*	*Flowers of ſulphur.*
Sulphurets alkaline. *Sulphureta alkalina.*	*Alkaline livers of ſulphur.* *Alkaline hepars. Sulphur-calies.*
Sulphurets earthy. *Sulphureta terrea.*	*Earthy livers of ſulphur.* *Earthy hepars.*
Sulphurets metallic. *Sulphureta metallica.*	Combinations of ſulphur with the metals.
Sulphuret of alumine. *Sulphuretum aluminæ.*	
Sulphuret of ammoniac. *Sulphuretum ammoniacale.*	*Boyle's ſmoking liquor.* *Volatile alkaline liver of ſulphur.*

Sulphuret

New Names.	Ancient Names.
Sulphuret of antimony. *Sulphuretum ſtibii.*	*Antimony.*
Sulphuret of antimony, native. *Sulphuretum ſtibii nativum.*	*Ore of antimony.*
Sulphuret of barytes. *Sulphuretum barytæ.*	*Liver of ſulphur of barytes.*
Sulphuret of biſmuth. *Sulphuretum biſmuthi.*	
Sulphuret of cobalt. *Sulphuretum cobalti.*	
Sulphuret of copper. *Sulphuretum cupri.*	*Pyrites of copper.*
Sulphuret of gold. *Sulphuretum auri.*	
Sulphuret of iron. *Sulphuretum ferri.*	*Martial pyrites.*
Sulphuret of fixed oil. *Sulphuretum olei fixi.*	*Balſom of ſulphur.*
Sulphuret of volatile oil. *Sulphuretum olei volatilis.*	*Balſom of ſulphur.*
Sulphuret of lead. *Sulphuretum plumbi.*	
Sulphuret of magneſia. *Sulphuretum magneſiæ.*	*Magneſian liver of ſulphur.*
Sulphuret of manganeſe. *Sulphuretum magneſii.*	
Sulphuret of mercury. *Sulphuretum hydrargiri.*	
Sulphuret of molybden. *Sulphuretum molybdeni.*	
Sulphuret of nickel. *Sulphuretum niccoli.*	
Sulphuret of platina. *Sulphuretum platini.*	

New Names.	Ancient Names.
Sulphuret of potaſh. *Sulphuretum potaſſæ.*	Liver of ſulphur having for baſis the vegetable alkali.
Sulphuret of potaſh antimoniated. *Sulphuretum potaſſæ ſtibiatum*	*Antimoniated liver of ſulphur.*
Sulphuret of ſilver. *Sulphuretum argenti.*	*Blanckmal.*
Sulphuret of ſoda. *Sulphuretum ſodæ.*	Liver of ſulphur having for baſis the mineral alkali.
Sulphuret of ſoda antimoniated *Sulphuretum ſodæ ſtibiatum.*	*Antimoniated liver of ſulphur.*
Sulphuret of tin. *Sulphuretum ſtanni.*	
Sulphuret of tunſtein. *Sulphuretum tunſteni.*	
Sulphuret of zink. *Sulphuretum zinci.*	*Blende or factitious galena.*
T.	
Tartar. *Tartarus.*	*Crude tartar.*
Tartrites. *Tartris, tis, s. m.*	Salts formed by the combination of the tartareous acid with different baſes.
Tartrite acidulous of potaſh. *Tartris acidulus potaſſæ.*	*Tartar. Supertartariſed vegetable alkali.* *Cream of tartar.* *Cryſtals of tartar.*
Tartrite of alumine. *Tartris aluminoſus.*	
Tartrite of ammoniac. *Tartris ammoniacalis.*	*Ammoniacal tartar.*

Tartrite

New Names.	Ancient Names.
Tartrite of antimony. *Tartris ſtibii.*	
Tartrite of arſenic. *Tartris arſenicalis.*	
Tartrite of barytes, *Tartris baryticus.*	
Tartrite of biſmuth. *Tartris biſmuthi.*	
Tartrite of cobalt. *Tartris cobalti.*	
Tartrite of copper. *Tartris cupri.*	
Tartrite of gold. *Tartris auri.*	
Tartrite of iron. *Tartris ferri.*	
Tartrite of lime. *Tartris calcareus.*	*Calcareous tartar.*
Tartrite of lead. *Tartris plumbi.*	*Saturnine tartar.*
Tartrite of magneſia, *Tartris magneſiæ.*	
Tartrite of manganeſe. *Tartris magneſii.*	
Tartrite of mercury. *Tartris hydrargiri.*	
Tartrite of molybden. *Tartris molybdeni.*	
Tartrite of nickel. *Tartris niccoli.*	
Tartrite of platina. *Tartris platini.*	

New Names.	Ancient Names.
Tartrite of potaſh. *Tartris potaſſæ.*	*Tartariſed tartar.* *Soluble tartar.* *Vegetable ſalt.*
Tartrite of potaſh antimoniated *Tartris potaſſæ ſtibiatus.*	*Emetic tartar.* *Antimoniated tartar.*
Tartrite of potaſh, ferruginous. *Tartris potaſſæ ferrugineus.*	*Chalybiated tartar.* *Soluble martial tartar.*
Tartrite of potaſh ſurcompounded with antimony. *Tartris potaſſæ ſtibiatus.*	*Tartariſed tartar containing antimony.*
Tartrite of ſilver. *Tartris argenti.*	
Tartrite of ſoda. *Tartris ſodæ.*	*Rochelle ſalt.* *Seignette's polychreſt ſalt.* *Tartariſed ſoda.*
Tartrite of tin. *Tartris ſtanni.*	
Tartrite of tunſtein. *Tartris tunſteni.*	
Tartrite of zink. *Tartris zinci.*	
Tin. *Stannum.*	*Tin.* *Jupiter.*
Tunſtats. *Tunſtas, tis, ſ. m.*	Salts formed by the combination of the tunſtic acid, with different baſes. Theſe ſalts had no name in the ancient nomenclature.
Tunſtat of alumine. *Tunſtas aluminoſus.*	
Tunſtat of ammoniac. *Tunſtas ammoniacalis.*	
Tunſtat of antimony. *Tunſtas ſtibii.*	

New Names.	Ancient Names.
Tunſtat of arſenic. *Tunſtas arſenicalis.*	
Tunſtat of barytes. *Tunſtas baryticus.*	
Tunſtat of biſmuth. *Tunſtas biſmuthi.*	
Tunſtat of cobalt. *Tunſtas cobalti.*	
Tunſtat of copper. *Tunſtas cupri.*	
Tunſtat of gold. *Tunſtas auri.*	
Tunſtat of iron. *Tunſtas ferri.*	
Tunſtat of lead. *Tunſtas plumbi.*	
Tunſtat of lime. *Tunſtas calcareus.*	
Tunſtat magneſia. *Tunſtas magneſiæ.*	
Tunſtat of mangaueſe. *Tunſtas magneſii.*	
Tunſtat of mercury. *Tunſtas hydrargiri.*	
Tunſtat of molybden. *Tunſtas molybdeni.*	
Tunſtat of nickel. *Tunſtas niccoli.*	
Tunſtat of platina. *Tunſtas platini.*	
Tunſtat of potaſh. *Tunſtas potaſſæ.*	
Tunſtat of ſilver. *Tunſtas argenti.*	

New Names.	**Ancient Names.**
Tunſtat of ſoda. *Tunſtas ſodæ.*	
Tunſtat of tin. *Tunſtas ſtanni.*	
Tunſtat of tunſtein. *Tunſtas tunſteni.*	
Tunſtat of zink. *Tunſtas zinci.*	

W.

Water.	*Water.*
Water, lime.	*Lime water.*
Water diſtilled.	*Diſtilled water.*
Waters impregnated with the carbonic acid.	*Acidulated waters.* *Gazeous waters.*
Waters ſulphurated.	*Hepatic waters.*

Z.

Zink.	*Zink.*

AN

AN
ACCOUNT
OF THE
NEW NOMENCLATURE.

EXTRACTED FROM THE REGISTERS OF THE ROYAL ACADEMY OF SCIENCES, PARIS, 13 JUNE 1787.

THE table of the new chymical nomenclature, which has been preſented to us by Meſſrs. de Morveau, Lavoiſier, Bertholet and de Fourcroy, is divided into ſix columns.

FIRST COLUMN.

SUBSTANCES NOT DECOMPOUNDED.

THE firſt contains the ſubſtances which appear to be the moſt ſimple, or to approach neareſt to the ſtate of ſimplicity; ſuch are light, matter of heat, or caloric, vital air or oxygen, inflammable air or hydrogen, phlogiſticated air or azot.

Next are placed the acidifiable baſes or radicals of the acids; that is to ſay, the ſubſtances, which although not acid in themſelves, nevertheleſs produce the different acids, by their ſimple combuſtion with oxygen, or dephlogiſticated gas deprived of its caloric or matter of heat. At the head of this claſs they have placed ſulphur, which they regard as an elementary ſubſtance, or at leaſt as a ſubſtance not decompoſed and as the baſe of the vitriolic acid. Next follow the leſs known baſes of the muriatic, boracic, ſuccinic, and acetic acids; in a word, the baſes of all the acids ſucceſſively taken from the mineral, vegetable, and animal kingdoms. Theſe baſes are expreſſed in the table by the general name of *radical:* thus they ſay ſulphuric radical, muriatic radical, acetic radical, phoſphoric radical, lactic radical, &c.

In this claſs the moſt known baſes of the acids are diſtinguiſhed from thoſe which we have not as yet been able to decompoſe, or whoſe principles we cannot obtain ſeparately; ſuch are azot, carbon, ſulphur, and phoſphorus.

In this firſt column likewiſe are placed the ſemi-metals and the metals, as being ſimple ſubſtances; the five earths expreſſed by the words *ſilice*, *alumine*, *barytes*, *lime*, and *magneſia*; in fine, the three alkalies, *potaſh*, *ſoda*, and *ammoniac* or volatile alkali.

SECOND COLUMN.

THE SUBSTANCES OF THE FIRST COLUMN, CHANGED INTO THE STATE OF GAS BY CALORIC.

Light or caloric combined with oxygen, with hydrogen, with azot, and with ammoniac, aſſiſts in changing them into the ſtate of gas, and thus produces vital air, inflammable air, and phlogiſticated air or alkaline gas. Theſe are the claſs of combinations denominated in the ſecond column.

THIRD COLUMN.

THE PRECEDING SUBSTANCES, UNITED TO OXYGEN, AND THEREBY PRODUCING ACIDS.

The different ſubſtances contained in the firſt column, combined with oxygen, produce all the acids, to which in this ſtate a generical name is given, the termination of which is always the ſame; thus is ſaid ſulphuric acid, to diſtinguiſh it from ſulphureous acid, which contains a leſs quantity of oxygen, and conſequently a greater quantity of ſulphur; nitric acid, muriatic acid, acetic acid, oxalic, ſebacic, &c. Next are placed the metallic calces, which are expreſſed by the generical name oxyd; thus is ſaid, oxyd of arſenic inſtead of calx of arſenic, oxyd of antimony, of biſmuth, of ſilver, of gold, &c. and this very extenſive liſt of combinations fills up the third column.

FOURTH COLUMN.

THE SAME SUBSTANCES OXYGENATED AND CONVERTED INTO THE STATE OF GAS.

In the fourth, are placed the names of thoſe ſame ſubſtances oxygenated; that is to ſay, combined with oxygen or the baſe of vital air, become acid, and tranſmuted into the ſtate of gas; there are but few of them, in proportion to the number of acids which occupy almoſt the entire extent of the third column: ſuch are the *nitrous gas, muriatic gas, carbonic acid gas* or *fixed air, ſulphureous gas* and *fluoric gas.*

We ſhould remark, that, when an acid or a metallic calx imbibes an exceſs of oxygen, the epithet *oxygenated* is added to ſignify ſuch property; thus we ſay oxygenated muriatic acid, oxyd of arſenic or calx of arſenic; the oxygenated oxyd of arſenic takes the name of arſenic acid, and in the ſame manner is ſaid molybdic, and tunſtic acids.

FIFTH

FIFTH COLUMN.

THE SAME OXYGENATED SUBSTANCES WITH THEIR BASES.

In the fifth column are ranged the combinations reſulting from theſe oxygenated ſubſtances, combined with different baſes, either alkaline, earthy, or metallic, to which are given names with different terminations, but which are ſimilar for ſubſtances of the ſame ſpecies. The termination in *at* indicates the perfect and complete combination; thus ſulphat of potaſh, of ſoda, of lime, &c. expreſs vitriolated tartar, vitriol of ſoda, of ſelenite, &c. The termination in *ite*, on the contrary, expreſſes the ſame combinations with the acids, but in a ſtate leſs oxygenated; thus nitrite of potaſh ſignifies potaſh ſaturated with vitriolic gas; acetite of potaſh ſignifies the common foliated earth, and acetate of potaſh, the combination of potaſh with radical vinegar. According to this rule alſo is ſaid arſeniat of potaſh, and of ſoda, to ſignify the arſenical acid ſaturated with theſe two baſes.

SIXTH COLUMN.

THE AFORESAID SUBSTANCES COMBINED IN THEIR ORIGINAL SIMPLE STATE.

In fine, the ſixth column preſents the aforeſaid ſubſtances combined in their original ſtate of ſimplicity, without being acidified; thus plumbago, or the combination of charcoal and iron, is called carburet of iron; the union of ſulphur with the different metallic ſubſtances is called ſulphuret; thus ſulphuret of iron, and ſulphuret of antimony, ſignify martial pyrites, and antimony, &c. The words ſulphuret of potaſh, and ſulphuret of ſoda, ſignify the alkaline livers of ſulphur; ſulphurated hydrogen gas, means hepatic gas, &c. The ſame manner of expreſſion is uſed for the union of phoſphorus with iron, which is called phoſphuret of iron; with copper, phoſphuret of copper; and with lead, phoſphuret of lead: in fine, phoſphorated hydrogen gas ſignifies the phoſphoric gas.

At the end is an appendix, containing the new denominations appropriated to ſeveral more compound ſubſtances, and which combine without decompoſition; ſuch are, among others, mucus inſtead of mucilage, gluten inſtead of glutenous matter, fixed oil and volatile oil, for ſebaceous oil and eſſential oil, aroma for the aromatic ſubſtance, and alcohol for ſpirit of wine.

We ſhall not pretend to diſcuſs the infinite number of objects which are included in the table of the methodical nomenclature: we ſhall allow ourſelves to make a few reflections only. This table is the work of four gentlemen who are juſtly celebrated in the ſciences, and who have been employed about it for a length of time; without doubt they have not preſented it without having maturely conſidered and compared the baſe of the ancient theory with the baſe of the new; and they build upon a foundation of curious and exact experiments. There never was a theory which owed its birth to men of more abilities and experience than the new pneumato-chymical theory; nor was there ever a theory that more united the opinions of all chymical philoſophers by a number of more admirable experiments and uncontrovertible facts than the old doctrine of phlogiſton. Therefore this ſubject deſerves the moſt particular attention, it requires time, experiments, and the calm reflection of phyſicians and chymiſts, properly to diſcuſs and judge it; and this judgment cannot happen on a ſudden, becauſe it is not on a ſudden that ideas which are received in a ſcience can be done away, in a ſcience whoſe progreſs is at preſent ſo rapid, and which is ſo cloſely joined to experimental phyſics, and which has been ſo amazingly enlightened within this laſt half century. It is not on a ſudden that the old terms of chymiſtry, ſo diffuſed, and even familiar throughout all Europe, can be eraſed, and other expreſſions ſubſtituted, from foreign etimologies, and many of them from the ancient Greek language, which is already almoſt unknown to the learned, and in which neither trace, nor any notion whatſoever can be found, of the things, or of the ideas which they are forced to ſignify.

The ancient theory of Stahl which at preſent is attacked, we muſt allow to be incomplete; but are there no embarraſſments, no difficulties in the new one? In the ancient, ſeveral phenomena were explained one way or other by the aid of phlogiſton; and it was by the means of water, of earth, of air, and of fire, according to the different and abſtracted orders of mixture, of compoſition, of ſuper-compoſition, and of aggregation, that were produced the acids, the alkalies, the metallic ſubſtances, &c. According to the modern theory, it is oxygen united to different acidifiable baſes, that produces theſe ſame acids; but can any one inform us what this oxygen is? What this acid radical is? According to the old theory, ſulphur is vitriolic acid ſaturated and neutraliſed by the principle of inflammability: according to the new theory, on the contrary, ſulphur is a ſimple ſubſtance. In the old theory, when ſulphur burns, it is the phlogiſton, the matter of fire, which diſengages, and the vitriolic acid abſorbs the water of the atmoſphere. In the new, on the contrary, it is the air which burns, it is the pure air which becomes decompounded, and its caloric ſet at liberty, and its baſe, the oxygen, unites with the ſulphur, a ſimple ſubſtance, yet abſolutely paſſive, and in an inſtant is produced a new ſubſtance, eminently cauſtic, the vitriolic acid. In the old, the cauſticity of the acid is blunted by the phlogiſton by which it is ſaturated; in the new, it is the oxygen, which converts the ſulphur with which it combines, into a moſt powerful acid. Is it therefore more natural, is it leſs contrary to the order of things, leſs contrary to analogy, to eſteem ſulphur and phoſphorous as elementary ſubſtances, rather than to look upon vital air as one? Or rather, is it not more true that they both are compoſitions? And that in this circumſtance, when ſulphur and phoſphorus burn, that there is a diſengagement of, we do not ſay light, we do not ſay heat, but abſolute fire, what are the elements of the flame which theſe ſimple ſubſtances produce? Do oxygen and hydrogen there find themſelves united? From whence comes the hydrogen? Or if the hydrogen plays here no part, from whence comes the water which is to be ſeen after combuſtion?

In the ancient theory, the ſulphureous acid is the vitriolic acid deprived of a portion of the phlogiſton which conſtituted it ſulphur, and put into a new ſtate of combination with this ſame phlogiſton, and with the water of the atmoſphere. In the new theory, on the contrary, the ſulphureous acid is only ſulphur united to a leſs quantity of oxygen. But is it a combination of vitriolic acid and of ſimple ſulphur? Or is the vitriolic acid not as yet preſent, if we may uſe the expreſſion, but in embrio? In the former caſe, it may be aſked what is that phlogiſton which renders concrete, ſolid, inodorous, and inſipid, the vitriolic acid in ſulphur; at the ſame time that in changing form, in diminiſhing in quantity, and with the aſſiſtance of water, it becomes a moſt volatile ſuffocating ſubſtance in the ſulphureous acid? But in the latter caſe, we alſo may aſk, what is this oxygen, the baſe of vital air, which by uniting with a ſimple ſubſtance, ſulphur, forms the vitriolic acid, while a very ſmall portion of this ſame oxygen, united to this ſame ſulphur, produces a gazeous ſubſtance prodigiouſly volatile; in a word, ſulphureous acid again?

If it be not eaſy in this manner to renounce all the principles of one's education, we think it alſo more difficult raſhly to admit that a profuſion of ſubſtances, which analogy in the ſcience ſeems to indicate as more or leſs compounded, ſhould be hence forward looked upon as ſimple bodies, without counting the number which people ſhould be obliged every day to ſimplify, juſt as if we were again at the origin of all things and at the firſt moments of the creation.

The new theory, we ſhall not deny, has notwithſtanding its advantages over the old. It agrees better with the mutual action of the principles of different bodies; for example, this vital principle, the aliment of life and flame, which paſſes from the air into the acids, and from the acids into a variety of combinations, from which laſt it is extracted by art, and made to appear again in the form of vital air; and the new theory owes theſe advantages to preciſion, and to the exact calculation to which the perfection of modern apparatus has reduced the method of analyzing.

In regard to the theory of the decompoſition and recompoſition of water, the experiments which ſupport it are brilliant and capital, without doubt; but the concluſions are deduced merely from the comparative weights of the gaſes and of the water which they produce: it appears to us that too little attention is paid to that of the matter of heat, becauſe its weight has not as yet been rated. Nevertheleſs, the enormous quantity of heat and light, which diſengages during the combuſtion of the two airs, cannot be looked upon as nothing. Why ſhould not the heat which is combined in two very different ſtates in vital air and inflammable air be regarded as the diſſolver of the water, which their combuſtion has produced? Does not what is already known, and what is every day diſcovered of the matter of heat, the different ſtates of fluidity, of viſible and inviſible vapor, and aeriform expanſion, through which it ſucceſſively and continually makes water paſs, lead us and in a manner force us to admit this diſſolution and its precipitation? When in a ſummer's thunder-ſtorm, the heavens become obſcured by a maſs of thickening clouds, dark and confuſed, a ſudden diſcharge of thunder inſtantaneouſly breaks the combination, when in a ſecond this immenſe cloud burſts, melts, and covers the ſurface of the earth with a deluge of water; this cannot be a generation. Is it not as natural to ſuppoſe that this water, firſt diſſolved and volatilized by the heats of ſummer, and thereby put into a ſtate of expanſion in the atmoſphere, by the aid of the ſame heat and of the different ſtates in which this matter ſo active, ſo ſubtle, ſo light, and ſo inclined to combination can enter; finds itſelf precipitated from theſe different combinations by the great electrical diſcharge which is made in the clouds, and which we perceive inſtantaneouſly to produce its effect?

We ſhall go no farther; we ſhall only ſay, that when we permitted ourſelves to make theſe reflections, we did not pretend to oppoſe the new theory rather than to defend the ancient. The function with which we are charged by the academy, obliges us to examine without paſſion, to diveſt ourſelves of all affection, of all private opinion, and to be on our guard as well againſt the deluſion of novelty, as againſt the prejudices which ſo naturally ariſe from a long eſtabliſhed ſyſtem of ſtudies, and an ancient method of beholding the different objects.

We are therefore of opinion that the new theory, as well as its nomenclature, ſhould be ſubmitted to the trial of time, to the encounter of experiments, to contending opinions: in fine, to the judgment of the public, as the only tribunal which ought, and which can determine in ſuch an affair. It will then be no longer a theory, but a concatenation of facts, or an error. In the firſt caſe, it will afford a more ſolid foundation to human knowledge; in the ſecond, it muſt fall into oblivion as well as all former theories and ſyſtems of phyſic. We therefore think that it is in this point of view the table of the new chymical nomenclature, with the memoirs upon it, ſhould be allowed to be printed and publiſhed with the privilege of the academy, yet in ſuch a manner that it cannot be inferred whether the academy adopts or rejects the new theory; the academy ought with that impartiality which has ever been the baſe of its conduct, await the trial of time and the judgment of phyſicians. And then the academy can have it in its power to give its ſanction to what both chymiſts and phyſicians agree; in fine to legitimate whatever in this new nomenclature may ſeem agreeable to cuſtom, to the ear, and to the genius of the language to adopt.

Tunc nova factaque nuper habebunt verba fidem: ſi Greco fonte cadant parcè detorta.

At the Louvre the 13 June 1787. *Signed*, BEAUME, CADET, DARCET and SAGE.

I certify this extract to be conformable to its original and to the judgment of the academy.

Paris 23 June 1787.

Signed, the Marquis of CONDORCET.

A MEMOIR.

ON THE NEW CHARACTERS TO BE USED IN CHYMISTRY.

By Meſſrs. HASSENFRATZ and ADET.

IF, ſince the diſcoveries made by the modern chymiſts, the old nomenclature of chymiſtry ſeemed to contain numberleſs errors in place of facts; if it was too limited to convey the new ideas which we have acquired: in ſhort, if the reform was neceſſary which Meſſrs. de Morveau, Lavoiſier, Bertholet and de Fourcroy have made, the characters uſed by the ancient chymiſts were not more exempt from reproach, and required the corrections which the advanced ſtate of chymical knowledge appeared to indicate. The gentlemen we have mentioned have perceived in their conferences, at which we have aſſiſted, the neceſſity of correcting the chymical characters; they were kind enough to abandon to us the entire work, and to aſſiſt us with their enlightened powers. And we have ſubmitted our performance to their judgment before we would take the liberty to preſent it to the Academy.

In our reformation of the chymical characters we are far from having the ſame deſign with the ancient chymiſts. They endeavored by every means to ſcreen their ſcience with a myſterious veil from the eyes of the vulgar; we ought on the contrary to uſe our utmoſt endeavors to render our knowledge as communicative as poſſible. Should the chymical characters become uniform among the chymiſts of every nation, they will reſemble the writing of the inhabitants of China, of Tonking and of Japan. Although theſe people have different languages and conſequently different ſounds to expreſs the ſame ideas, they notwithſtanding, have common characters to repreſent them; ſo that the diverſity of their languages does not prevent their mutually underſtanding what they write, and thereby communicating each new combination of ideas that happen. The chymical characters will reſemble the figures of algebra, which expreſſing the operations of the judgment neceſſary in that ſcience, afford an eaſy method to the geometricians of every country to underſtand one another,

This conſideration is ſufficient to ſhew how much it is neceſſary to have the characters of chymiſtry common to all the chymiſts. We need not enter into any digreſſion to prove it, and we will content ourſelves in debating after what manner the chymical characters ſhould be made, ſo as to ſupply the ſcience in its preſent ſtate with every neceſſary method of expreſſion.

Chymiſtry may be conſidered as a ſcience that teaches what in a compound ſubſtance are the number, the nature, and the proportions of its component ſimples; and likewiſe indicates the manner in which theſe different ſubſtances act upon one another: but we cannot expect to be able to give this laſt degree of perfection to the chymical characters. We have not a ſufficient knowledge of the reciprocal action of different bodies, to be able to repreſent as in a picture the effects of ſuch action by the means of our characters; thus we are obliged to confine ourſelves to the ſolving of the following problem. *The number of known ſimple ſubſtances being given, and likewiſe the principal affinities which they bear to one another, what kind of characters ſhould we give them, ſo that when combined with one another, they may form compound characters capable of indicating the number and the nature of the ſimple ſubſtances which enter into a compound body? And in what manner ſhould theſe ſimple characters be diſpoſed to form the compound characters, ſo that chymiſts may on inſpecting the character of a compound ſubſtance inſtantly know the proportion of the ſimple ſubſtances which compoſe it?*

Before we indicate the manner in which we have ſolved this problem, we think it may not be found uſeleſs to offer to the inſpection of the Academy the characters uſed by the ancient chymiſts, and to point out their utility.

We cannot ſay preciſely in what age the chymiſts firſt began to make uſe of characters. The enquiries which we have made upon this ſubject have only ſerved to inform us with what views the ancients had formed the characters of the metallic ſubſtances. Theſe philoſophers perſuaded themſelves that the celeſtial bodies had a ſenſible influence on all the animate and inanimate ſubſtances of the terreſtrial globe, and therefore diſtinguiſhed the metals into ſolar or colored metals, and into lunar or white metals. The metals of theſe two claſſes were next ſub-divided into perfect metals, ſemi-perfect and imperfect; the perfection was expreſſed by a circle, *fig.* 1; the ſemi-perfection, if we may uſe the expreſſion, by a ſemi-circle, *fig.* 2, and the imperfection by a croſs or dart, *fig.* 3. Thus gold, which was the ſolar metal by excellence, was repreſentend by a plain circle, *fig.* 4. This figure was common to the metals of the firſt claſs, ſuch as copper, *fig.* 5, iron, *fig.* 6, and antimony, *fig.* 7; but at the ſame time combined with the ſign of imperfection. Silver, which was regarded as a ſemi-perfect lunar metal, was expreſſed by a ſemi-circle, *fig.* 2; tin, *fig.* 8, and lead *fig.* 9, had alſo the ſemi-circle for character, as belonging to the ſame claſs; but diſtinguiſhed from ſilver by the croſs or dart. In fine, mercury, which was eſteemed an imperfect metal, at the ſame time both ſolar and lunar, had the diſtinctive marks of theſe two claſſes, and was expreſſed by a circle ſurmounted by a ſemi-circle, to which was added a croſs, *fig.* 10. This whimſical regulation which the ancient chymiſts eſtabliſhed in their characters, and which pleaſes the fancy of moſt people, although founded upon the moſt chymerical ideas, was in a little time diſcontinued. For according as the chymiſts diſcovered new ſubſtances, they aſſigned them new repreſentative ſigns, and in their formation conſulted only their caprice or the laws which each of them ſtruck out of his favorite hypotheſis. But by the introduction of new characters, invented with very different views from thoſe of the preceding chymiſts, an incoherence and confuſion predominated in the chymical characters, of which an idea can be conceived from the characters employed from the time of Geoffroy to that of Bergman, who made uſe of them in their tables of affinities. We ſhall not intrude upon the Academy any ſuperfluous accounts of the incoherencies to be remarked in the different tables of chymical characters; therefore we ſhall confine ourſelves to the pointing out of ſuch only as have found way into the moſt modern tables of chymical ſigns, which are the tables of Bergman. This celebrated chymiſt employed, as general characters, a triangle, a circle, a kind of crown, and a croſs. The triangular figure modified in different ways, repreſented the four elements of the ancients, and alſo the inflammable ſubſtances, as phoſphorus and ſulphur; the little crown ſignified the metallic ſubſtances; the circle belonged to the ſalts, and with ſome modifications alſo afforded characters for the alkalies; in fine, the croſs was uſed only to expreſs the different acid ſubſtances, *fig.* 11.

We ſhall not make any obſervations upon theſe general characters, but paſs at once to the examination of Bergman's repreſentative ſigns which he made uſe of to expreſs the different ſubſtances, whoſe claſſes are indicated by the characters we have mentioned. One ſhould ſuppoſe from what we have ſaid, that the character for earth in general, which is a triangle with its baſe upwards, and interſected by a horizontal line, ought to ſerve, with ſome modifications, to expreſs all the different kinds of earth. Neverthleſs, Bergman has employed the triangular figure to repreſent only ſilice and alumine; but lime, *fig.* 12, magneſia, *fig.* 13, and barytes *fig.* 14, notwithſtanding they have the properties of earth in a very high degree, are repreſented by characters that have no manner of analogy with that given to earth in general. The croſs which in his ſyſtem particularly characteriſed the acids, is found combined with the ſigns of an infinity of ſubſtances which are very far from having the properties of acids, ſuch as lime, *fig*. 12, copper, *fig*. 5, tin, *fig*. 8, lead, *fig*. 9, ſulphur, *fig*. 15, antimony, *fig*. 7, gum, *fig*. 16, and mercury, *fig*. 10. In the ſame manner Bergman has not made any uſe of the character with which he repreſented the metals in general to expreſs them in particular. He gave them for characteriſtic ſigns, croſſes, circles and ſemi-circles; but the circle had been before beſtowed upon the claſs of ſalts. It ſhould ſeem from this that he wanted to expreſs ſome ſuppoſed likeneſs between the metals and the ſaline ſubſtances. One would be tempted to think, on peruſing his tables, that there was an analogy between lime and the oxyds; for when he wanted to repreſent an oxydified metal, he always joined to it the character of lime!

It is evident from this ſhort examination of the more modern characters, that there are too many incoherencies and abſurdities among them for us to ſuffer them any longer to exiſt, particularly becauſe they are not adequate to the expreſſion of the modern improvements, and therefore we have determined on this general reformation.

The ſubſtances analyzed by chymiſts may be divided into two great claſſes, into ſimple and compound: by the words ſimple bodies are to be underſtood, ſuch as we have not as yet been able to analyze; the compound bodies on the contrary are thoſe whoſe conſtituent principles can be ſeparated by art. From this it is evident that there ought to be two great claſſes of characters; the firſt intended to expreſs the ſimple ſubſtances and the others to ſignify the compound; but as the compound bodies are all formed by the different combinations of ſimple ſubſtances, the characters to expreſs compound bodies ſhould be made by the junction of the different characters of ſimple bodies. And we hope to be able to unite this double advantage in the characters which we preſent to the Academy.

The diſcoveries of the moderns indicate that the claſs of the 54 ſimple ſubſtances which are at preſent known, may be divided into ſix genera, 1°. into ſubſtances which appear to enter into the compoſitions of the greater number of bodies; 2°. into alkaline and terreſtrial ſubſtances; 3°. combuſtible ſubſtances; 4°. metallic ſubſtances; 5°. into acidifiable ſubſtances, which we have every reaſon to ſuppoſe formed of ſeveral principles, and whoſe decompoſition we can at preſent foreſee; ſuch are, for example, the baſes of the vegetable acids; 6°. in fine, into compound ſubſtances, with whoſe component principles we are not as yet acquainted. Each of theſe genera is divided into a number of more or leſs conſiderable ſpecies.

This diviſion of ſimple bodies requires that each genus have a ſign proper to itſelf, and which may with ſome modifications be employed to expreſs the different ſpecies of its genus; and we have very exactly obſerved this rule in the formation of our chymical characters.

We have given to the firſt genus of ſimple bodies, a right line; to the ſecond a triangle, to the third a ſemi-circle, to the fourth a circle, to the fifth a ſquare, and to the ſixth a ſquare with its point upward. Having thus determined on the ſix generical ſigns, we had nothing more to do but diverſify them, in ſuch a manner as to render each ſpecies eaſily diſtinguiſhable from the others; and we have effected it in the following manner.

The right line, which is the character for the firſt genus, can have four different and diſtinct poſitions; it may be either vertical, horizontal, inclined from the right to the left, or from the left to the right. But by rendering the line zigzag or wavy, and placing it in the ſame poſitions as the right line, we thus obtain by the aſſiſtance of a ſingle line eight characters, perfectly diſtinct from one another, *fig*. 17. But as we have only four known ſpecies of the firſt genus; ſuch are, light, caloric, oxygen, and azot, there remain four characters which future chymiſts may employ to indicate whatever new ſubſtances may be diſcovered in the firſt genus of ſimple bodies.

The ſemi-circle, which expreſſes the inflammable ſubſtances, has like the right line, four perfectly different poſitions. It can open upwards, or downwards, to the right, and to the left, *fig.* 18; theſe four poſitions of the ſemi-circle have afforded us characters for the four ſpecies of bodies in the ſecond genus; but as we can double the ſemi-circle, and by that means form a character ſimple enough, and place it in poſitions ſimilar to thoſe of the ſemi-circle, *fig.* 19, it follows that four characters remain, which can be uſed, when ever any thing new be diſcovered in the genus of inflammable ſubſtances.

The triangle, which we have employed for the characteriſtic ſign of the alkaline and earthy ſubſtances, can be placed only in two different poſitions; it can have its vertex either upwards or downwards; yet it was neceſſary to produce characters for all the earthy ſubſtances by the aid of theſe two poſitions of the triangle: which we have effected by giving to the alkalies the triangle with its point upwards, and to the earths the triangle with its point downwards, and by inſcribing in the triangle, which expreſſes each ſpecies of alkali or earth, the firſt letter of the Latin name of that particular ſubſtance. Thus, for example, potaſh is expreſſed by a triangle with its point upwards, in the middle of which is inſcribed a P; in like manner lime is expreſſed by a reverſed triangle, containing within it a C.

The circular figure, which we have choſen to diſtinguiſh the metallic, or the fourth genus, preſents for its modifications the ſame difficulties as the triangle. We have ſurmounted them in the ſame manner, by inſerting in each of theſe circles which repreſent each ſpecies of this genus, the initial letter of the Latin name of each metallic ſubſtance, taking care at the ſame time to repreſent gold by a circle with a point at its center, merely for the ſake of preſerving the ancient character; we have preferred the Latin initial letters, becauſe the Latin names are univerſally known.

We have modified in the ſame manner the ſquare, adapted to the fifth genus, or that of the acidifiable ſubſtances, which we ſuppoſe to be formed of ſeveral principles, and whoſe decompoſition already can be foreſeen; each ſquare contains within it the initial letter of the ſubſtance which it ſhould ſignify. The ſame is done for the ſquare with its angle upwards, uſed to ſignify the undecompounded mixed bodies. Before we thought of diſtinguiſhing our triangles by letters, we made uſe of lines and points. The lines already having a determined ſignification, the characters in which they were placed appeared like compounded ones; and the points ſeemed too minute a diſtinction and difficult to retain; theſe two inconveniencies made us adopt the letters, and eſpecially becauſe in uſing letters there can be no embarraſſment. To this deſign there appeared alſo another trifling obſtacle which we have evaded with equal facility, that two ſubſtances of the ſame genus happen to have the ſame initial letter. But they are eaſily diſtinguiſhed from each other, by inſcribing in the figure intended to ſignify ſuch ſubſtance, the initial letter of the name of ſuch ſubſtance, and in the other figure, the initial letter of the ſecond ſubſtance united to the conſonant next in order, and by this means a ſufficient difference is eſtabliſhed between the two names. Thus, for example; ſilver, whoſe Latin name begins with an A, like arſenic, is repreſented by a circle, in which is inſcribed the letter A, while the ſign of arſenic is a circle containing an A and an S joined together.

We conclude this memoir with the table of the characters for ſimple ſubſtances, which we have the honor to preſent to the Academy. And in a ſecond memoir we intend to determine the manner in which we ſhall ſolve the problem we propoſed.

SECOND MEMOIR.

ON THE NEW CHARACTERS TO BE EMPLOYED IN CHYMISTRY, AND THE ARRANGEMENT WHICH THEY SHOULD HAVE, TO EXPRESS THE PROPORTIONS OF THE SIMPLE SUBSTANCES CONTAINED IN COMPOUND BODIES.

By Meſſrs. HASSENFRATZ and ADET.

WE have ſhewn in our former memoir the characters for ſimple ſubſtances; we have now only to indicate the laws according to which ſhould be formed the characters for compound bodies, to attain the complete ſolution of the problem which we propoſed.

The characters of compound ſubſtances reſulting from the combination of ſimple ſubſtances, as we have already ſaid, ought alſo to reſult from the union of the characters of theſe ſame ſimple ſubſtances. Thus the firſt law to be obſerved in the formation of characters for mixed bodies, is to join together the characters of ſimple ſubſtances, two and two, to repreſent the compoſitions of two ſubſtances; three and three, to repreſent the compoſitions of three ſubſtances; and four and four, to repreſent the bodies reſulting from the union of four ſimple ſubſtances. From which it appears that the characters for mixed bodies are to be the more compounded, in proportion as there are more principles in their compoſition.

For the formation of compound characters there would be no other rule to be obſerved but what we have mentioned, were the comparative quantities of the component principles in compound bodies always the ſame, and if conſequently the compound bodies always preſented themſelves in the ſame ſtate and with the ſame properties; but we know that although two ſubſtances can have a degree of reciprocal ſaturation, they nevertheleſs can alſo form combinations in different proportions, in which they produce compoſitions ſenſibly different from thoſe formed by their union with reciprocal ſaturation. Thus a conſiderable quantity of ſulphur united to a ſmall doſe of oxygen, produces an oxyd of ſulphur, which poſſeſſes no mark of acidity (1). If to this combination be added a new quantity of oxygen, there reſults an acid compoſition, nothing leſs than ſulphureous acid; and this ſame ſulphureous acid is quickly tranſmuted into ſulphuric acid, if ſupplyed with the quantity of oxygen neceſſary to advance it to this laſt ſtate of acidity. From this it is evident, that ſulphur and oxygen united produce very different compoſitions according to the different proportions in which they unite. From which it follows, that by the aſſiſtance of two characters which joined together repreſent the combination of ſulphur and oxygen, we ſhould expreſs the three ſtates in which this combination can exiſt.

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(1) *See Ludbok's Diſſertatio de Principio ſorbili, page* 43.

This we have effected by diverſifying the reſpective poſitions of the characters which repreſent ſulphur and oxygen.

It is neceſſary that the characters of compound bodies be joined together, that the characters of ſimple ſubſtances placed next to one another ſhould not be miſtaken for them.

Two characters joined together can have eight different poſitions; viz. two horizontal, two vertical, two oblique to the right, and two oblique to the left. Thus theſe two characters, *fig.* 20, can be combined as in *fig.* 21. But the oblique poſitions do not preſent ſufficient diſtinction, and may be productive of ſome confuſion in a page of characters when not well done. We have therefore rejected theſe four oblique poſitions; and then there remained for us only four poſitions which we could uſe, viz. two horizontal, and two vertical; but in the compoſitions of theſe ſubſtances it matters little whether one of them be placed on the right ſide or on the left (1). Thus the two horizontal poſitions are reduced to one; and conſequently theſe two characters can have only three poſitions; viz. one horizontal and two vertical. The poſition of the two characters upon the ſame horizontal line is to indicate that the ſaturation is reciprocal, and that there is an equality in the proportions of the principles which compoſe the compound ſubſtance repreſented. The vertical poſitions, on the contrary, are to ſignify that there does not exiſt a reciprocal ſaturation nor equality of proportion among the component principles of a compound body; ſo that the character which is to be placed inferior to the others, is to ſignify that the ſubſtance which it repreſents is in exceſs of proportion in compariſon to the others. This will be explained by the following example.

Let us ſuppoſe, for example, a combination of ſulphur and potaſh, that is, hepar, or according to the new nomenclature, ſulphuret of potaſh; it may happen that the ſulphur and the potaſh are in a ſtate of reciprocal ſaturation, and it alſo may happen that the one or the other of the two component principles of this ſulphures of potaſh is in greater proportion than the other, and either of theſe ſtates can eaſily be expreſſed according to our rules. Thus the character of potaſh being as in *fig.* 23, and that of ſulphur as in *fig.* 24, the combination of ſulphur and potaſh, in which there is a reciprocal ſaturation, can be expreſſed by *fig.* 25; and the combination of ſulphur and potaſh, where the ſulphur predominates, can be ſignified by *fig.* 26; and, in fine, the combination of ſulphur and potaſh, in which the latter ſubſtance is in ſuperabundance, may take its diſtinguiſhing character as *fig* 27.

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(1) But it would be otherwiſe in the compoſitions of more than two bodies; for if the affinities of bodies for one another were well determined, in a ſubſtance compoſed of a number of principles, the degree of tendency of one principle for the others could be expreſſed, by advancing the characters of theſe principles as much more to the left as they would have leſs affinity for the forementioned principle. If, for example, we had to expreſs a combination of ſulphuric acid, potaſh, and iron, of ſuch a nature that the three ſubſtances were reciprocally ſaturated, it could be indicated that the ſulphuric acid had more attraction for the potaſh than for the iron, by placing the characters of this combination as repreſented by *fig.* 22.

This is to be a general rule for all the compound bodies, be their nature what it may. But we muſt deviate a little in the following exceptions.

Heat, according to its degree of intenſeneſs, cauſes very great variation in the ſtate of bodies; it is known, that in proportion to the quantity of caloric with which ſubſtances combine, they are in a ſolid, liquid, or aeriform ſtate. Therefore we have to conſider caloric combined with different bodies in three very diſtinct ſtates; but as every ſubſtance in nature is at all times combined with more or leſs caloric, we have thought it the better way not to repeat too frequently the character of caloric, and exclude it whenever we intend to ſignify a body in a ſolid ſtate, and to employ it only to repreſent the liquid ſtate, and the ſtate of elaſtic fluidity; taking care, according to the fore-mentioned rule, to put the ſign of caloric at the top of the other characters when we intend to ſignify fluidity, and at the bottom of the other characters when we want to expreſs the elaſtic aeriform ſtate. Thus, for example, the character of lead being *fig.* 28, and that of caloric *fig.* 29, lead in the ſtate of ſolidity will be repreſented by *fig.* 28; when in the liquid ſtate by *fig.* 30, and when in the ſtate of elaſtic fluidity by *fig.* 31. Thus caloric is an exception to the general rule, and is to have only two poſitions inſtead of three in all its combinations. (See the ſecond plate.)

Oxygen in its union with the acidifiable ſubſtances makes the ſecond exception to this general rule. For oxygen combined in different proportions to the different acidifiable ſubſtances, produces compoſitions whoſe properties are too remarkable to ſuffer them to be miſtaken or confounded with one another. It produces 1° oxyds, 2° acids in which the acidifiable baſe predominates, 3° acids in which there is a reciprocal ſaturation, 4°, in fine, by combining again with an acid whoſe two principles are reciprocally ſaturated, it produces a compoſition which is diveſted of the characteriſtic properties of acids; but in this ſtate the force of its retention is ſo inconſiderable, that the action of a few rays of light are ſufficient to ſet it at liberty and make it re-gain its elaſtic ſtate.

This laſt production of the combinations of oxygen is well known only in the oxygenated muriatic acid, while the oxyd of ſulphur, the ſulphureous acid, and the ſulphuric acid, preſent us with the other compoſitions which we have mentioned. Nevertheleſs, oxygen in its combinations with azot appears to offer the four combinations of which we ſpeak. Nitrous gas or *oxyd of azot* is the combination of oxygen and azot, in which the acid properties are not at all developed. The nitrous acid, which lets eſcape nitrous gas, is the combination of oxygen and of azotic gas, in which the acidifiable baſe is in ſuperabundance. The nitrous acid, which is of a white color and does not diſengage any nitrous gas, when united with water, is a combination of oxygen and azot, in which there is a reciprocal ſaturation; and the ſort of nitrous acid which Mr. Monge ſays he obtained, appears to be oxygenated nitric acid. Thus, as oxygen combined with an acidifiable ſubſtance, can produce in certain caſes four very diſtinct compoſitions, the character of oxygen therefore muſt have four different poſitions. We have given it theſe four poſitions, by placing the character of oxygen at the top of the character of the acidifiable baſe, to indicate the combination which is not acid; by placing it at the middle of the character of the acidifiable baſe, to indicate the combination in which the acidifiable baſe predominates; at the bottom of the character of the acidifiable baſe, to indicate the combination in which there is a reciprocal ſaturation of the two principles; and, in fine, by placing it under the character of the acidifiable baſe, and in detatching it a little, to ſhew that the oxygen is in ſuperabundance in the compoſition, and that a very little force is requiſite to diſengage it. Thus, when we want to expreſs the combinations of oxygen and azot, the character of azot being *fig.* 32, that of oxygen *fig.* 33, the character of nitrous gas is to be *fig.* 34, that of nitrous acid *fig.* 35, that of nitric acid *fig.* 36, and that of oxygenated nitric acid *fig.* 37.

It is probable that ſeveral of the vegetable acids which we have not as yet been able to decompoſe with ſufficient accuracy to know their conſtituent principles, have the ſame baſe, and owe their acid properties to the oxygen (1); but as it appears that the differences preſented by theſe acids depend on the different proportions of the acidifiable baſe and oxygen, and that the proportions of the acidifiable baſe and oxygen vary in each of theſe acids, it follows that to indicate theſe different kinds of acids, means different from thoſe which we have already uſed ſhould be invented, becauſe theſe which we have are not ſufficient in the preſent caſe. But, as theſe acids appear to have for conſtituent principles carbon, hydrogen and oxygen, they can be eaſily expreſſed by uniting the three characters of theſe three ſubſtances in the manner indicated by their comparative proportions, and by placing over the character of oxygen the initial letter of the Latin name of the acid. For example, to expreſs by characters the tartareous and the oxalic acids, let us here imagine that in the firſt there are ten parts of carbon, five of hydrogen, and ten of oxygen; and that in the ſecond there are nine parts of carbon, ſix of hydrogen, and ten of oxygen, it follows that according to our principles theſe two acids be written in the ſame manner, for in both caſes the carbon is in exceſſive proportion in compariſon to the hydrogen, ſo that the tartareous acid would be repreſented as in *fig.* 38, and the oxalic acid as in *fig.* 39. Thus it could not be indicated that the hydrogen, as we ſuppoſe, is in greater proportion in the oxalic acid than in the tartareous acid, and that conſequently they muſt be different acids; but all equivocation may be prevented by writing, after what we have ſaid, the character of the tartareous acid as repreſented

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(1) This theory, which has not as yet been developed in any work, is ſupported by experiments made alone by us, and we expect ſoon to give an account of them to the public.

fig. 40, and the oxalic acid as *fig*. 41. This example is ſufficient to ſhew that although there may be found a greater number of acids, with baſes compoſed in the ſame manner; yet by theſe means can be expreſſed the different ſorts of acids reſulting from the combinations of theſe principles, in proportions too ſmall to permit them to be eaſily repreſented according to our general rules.

The plate of the ſimple ſubſtances offers us ſix general characters. By the means of the five firſt we have made fifty-four particular characters; we ſhall not ſpeak of thoſe of the ſixth ſpecies, becauſe the ſubſtances which they repreſent are too compound already. Theſe fifty-four characters combined two and two, form $\frac{54\times53}{2}=1431$ combinations; this number multiplyed by three, for we can expreſs three ſtates of combinations, gives 4293 combinations, two and two, without including the combinations of oxygen which can exiſt in four different ſtates.

If, according to our rules, two characters can have three poſitions, three characters joined together can produce thirteen very diſtinct combinations, *fig*. 42. In ſhort, there may be had a combination of three characters upon a horizontal line; three combinations of two characters united, placed over the third; and, in fine, ſix combinations of three characters upon a vertical line.

Thus our fifty-four characters, combined three and three, produce $\frac{54\times 53\times 52}{2\times 3} =$ 24,804 combinations: the number multiplied by thirteen, which expreſſes the number of poſitions that theſe three characters can have, gives 322,452 different combinations, which the fifty-four characters combined three and three ſupply.

We ſhall not go any farther with this calculation, which any one can make; it is enough to have proved that the ſyſtem of our characters is ſufficient to repreſent all the combinations at preſent known, and even ſuch as we may expect to diſcover in future by chymical analyſis.

We ſhall conclude this memoir with a ſhort recapitulation of all that we have ſaid.

We have employed ſix general characters for the ſix claſſes of ſimple or non-decompounded ſubſtances; a right line ſerves to expreſs the firſt claſs, or the ſubſtances which appear to enter into the greater number of compoſitions; a triangle, the earths and alkalies; a half circle, the inflammable ſubſtances; a ſquare, the acid radicals which we do not as yet know, but whoſe nature we expect to diſcover; and a lozenge, or in other words a ſquare with an angle upwards, the non-acidifiable compound ſubſtances whoſe component principles have not been as yet diſcovered.

By combining theſe characters two and two, three and three, &c. we have found out a method to expreſs, after a conſtant and uniform manner, all the compoſitions that we know; and to indicate, according to our general rules, how to form the characters for ſuch compound bodies as are the productions of principles that we ſhall probably, one time or other, be able to acertain by chymical experiments.

Thus, by the poſitions that we give to the characters of a compound ſubſtance, we indicate the comparative proportions of its component parts, And this is the plan that we have traced, to enable us to give a complete ſolution of the problem which ſo naturally preſented itſelf to us when we conſidered on the reformation of the chymical characters. *The number of known ſimple ſubſtances being given, and likewiſe the principal affinities which they bear to one another, what kind of characters ſhould we give them, ſo that when combined with one another, they may form compound characters capable of indicating the number and the nature of the ſimple ſubſtances which enter into a compound body. And after what manner ſhould theſe ſimple characters be diſpoſed to form the compound characters, ſo that chymiſts, on inſpecting the character of a compound ſubſtance, may inſtantly know the proportion of the ſimple ſubſtances which compoſe it?* We ſhall feel ourſelves extremely happy if the Academy judge that our endeavors have been attended with ſucceſs.

AN

ACCOUNT

OF THE

SUBSTANCE OF TWO MEMOIRS ON THE NEW CHARACTERS TO BE USED IN CHYMISTRY.

EXTRACTED FROM THE

REGISTER OF THE ROYAL ACADEMY OF SCIENCES, PARIS THE 27th OF JUNE, 1787.

THE Academy has charged us, Mr. Bertholet, Mr. de Fourcroy, and me, to give an account of the two memoirs which have been read in the aſſembly by Meſſrs. Haſſenfratz and Adet, on a new ſyſtem of chymical characters. The plan which they have adopted, and which we think is very ingenious, conſiſts in expreſſing by right lines, all the ſubſtances that, in the preſent ſtate of the ſcience, can be regarded as ſimple bodies; to expreſs by ſemi-circles the acidifiable combuſtible ſubſtances, ſuch as ſulphur, charcoal, and phoſphorus; by ſquares the more compound ſubſtances which combined with oxygen produce different acids; by lozenges, the compound ſubſtances, whoſe analyſis is but little known, and which are non-acidifiable; and in fine, by circles, the metallic ſubſtances. Having claſſed in this manner and accurately diſtinguiſhed the characters of theſe primitive ſubſtances, there only remained for them to diſtinguiſh the different ſpecies, and they have ſucceeded to their wiſhes, and have effected theſe diſtinctions; for the elementary ſubſtances, by varying the poſition of the right line; for the ſimple combuſtible ſubſtances, such as charcoal, ſulphur, and phoſphorus, by the different poſitions of the ſemi-circle, by cauſing it to open upwards or downwards, to the right or to the left; in fine, for the earths, the alkalies, the metals, and the acidifiable principles, by inſcribing in the interior of the character the initial letter of the Latin name given each ſubſtance.

The number of primitive characters which Meſſrs. Haſſenfratz and Adet have been obliged to employ, is fifty-five; and this number correſponds exactly with that of the ſubſtances preſented in the ſtate of the new nomenclature, not as ſimples, but as primitive ſubſtances relatively to the preſent ſtate of the ſcience. In the table of the new nomenclature all theſe ſubſtances naturally combine two and two, three and three, four and four, &c. They combine in various proportions, and it is from theſe different combinations that the whole of the mineral, vegetable, and animal kingdoms reſult. It is likewiſe by the union of the characteriſtic ſigns of the ſimple ſubſtances that Meſſrs. Haſſenfratz and Adet compoſe the characteriſtic ſigns of the compound ſubſtances; ſo that the union of their characters indicates very exactly the order of all the combinations known.

If Meſſrs. Haſſenfratz and Adet could not preciſely expreſs in the plan which they have followed, the proportions of the ſubſtances which enter into the different combinations, they at leaſt have been able to give a tolerable notion of them, by the poſition of their characters. When two ſubſtances are combined in equal or nearly equal proportions, the two characters which expreſs them are ranged upon the ſame horizontal line. When either of the two is in greater proportion than the other, the characters are placed one over the other, and that of the ſubſtance in ſuper-abundance occupies the lower place.

We ſhall not follow Meſſrs. Haſſenfratz and Adet through all the minutiæ of their work, and ſhall content ourſelves in giving an example taken from ſulphur and its compoſitions.

Sulphur is expreſſed in their table of characters by a ſemi-circle opening upwards. To expreſs this ſubſtance in a molten ſtate they join the character of caloric, and place it at the middle of the character of ſulphur. And to expreſs ſulphur in the ſtate of vapor or gas, they place the ſame character of caloric at the bottom of the character of ſulphur.

They repreſent likewiſe the ſulphur acidified, by combining it with the character of oxygen; and according to the poſition of this latter, they expreſs ſulphureous acid, ſulphuric or vitriolic acid, and even oxygenated vitriolic acid, if ſuch a combination can exiſt.

By the union of the characters of the ſulphureous and ſulphuric acids with different baſes, are formed the characters of all the alkaline, earthy, and metallic neutral ſalts, into which theſe acids enter; and Meſſrs. Haſſenfratz and Adet alſo expreſs the ſuper-abundance of the acid or of the baſe, by the reſpective poſition of their characters.

Meſſrs. Haſſenfratz and Adet have confined themſelves in this work to the ſimple relation of facts, and have laid aſide all hypotheſis; in conſequence of which they have not admitted phlogiſton, whoſe exiſtence did not appear to them to be proved, and without which all the phenomena of chymiſtry can be explained; and they found themſelves obliged by the very force of facts, to adopt what ſome perſons pleaſe to call the new theory. As this doctrine has become our own, that of ſeveral celebrated chymiſts, and of ſome members of the academy, we think that the aſſembly will not be diſpleaſed that we take the advantage of this circumſtance to juſtify it before them, and to anſwer the objections by which ſome have pretended to oppoſe it. This diſcuſſion is the more neceſſary and leſs foreign to the ſubject, as the baſe of the work laid before us by Meſſrs. Haſſenfratz and Adet is cloſely connected with that of the modern theory and diſcoveries.

If we take a ſolid body, ice, for example, and warm it, it converts itſelf into water, and this water expoſed to a heat of 80 degrees takes the form of vapor or gas. The ſame may be ſaid of almoſt all the ſubſtances in nature; they are ſolid, liquid, or aeriform, according to the degree of heat to which they are expoſed (*a*). And in modern phyſics has been diſcovered the method of exactly meaſuring the comparative quantities of heat neceſſary to convert a part of ſolid bodies into liquids, and theſe latter into aeriform elaſtic fluids (*b*).

According

(*a*) *See* the memoir on the combination of the matter of fire with evaporable fluids, and on the formation of elaſtic fluids. *Mém. Acad. des Sciences, année* 1777, *page* 420. See *alſo the ſame volume, page* 595, *&c.*

(*b*) *See* Mémoire ſur la chaleur. *Acad. des Sciences, année* 1780, *page* 355.

According to the new nomenclature which we have adopted, we ſay that a gas or an aeriform fluid, is a combination of caloric with ſome other ſubſtance; and every time that there is a formation of gas, caloric is neceſſary; and reciprocally every time that a gas returns into the ſolid or liquid ſtate, the quantity of caloric which had been required to render it gas, again appears and is ſet at liberty (*a*). This is an uncontrovertible fact, whatever idea be conveyed by the word caloric, either if we conſider it as a very ſubtle elaſtic fluid, or as a modification (*b*).

We do not deny the exiſtence of caloric in ſolids (*c*); to pretend any ſuch thing would be arguing againſt conviction. But we aſſert that the ſame body contains more heat when in the ſtate of liquidity, than it contained when in its ſolid ſtate, and alſo much more when advanced to the ſtate of elaſtic fluidity. We do not as yet know any exception to this general rule.

It is therefore neceſſary that we diſtinguiſh in every kind of gas, the caloric which acts as a diſſolver, and the ſubſtance to which it is united and which forms the baſe (*d*). Therefore vital air has its

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(*a*) Mém. Acad. 1777, page 424.

(*b*) We do not here make any difference between caloric and heat, though that diſtinction may be neceſſary; but we fear to interrupt the thread of the argument.

(*c*) Mém. Acad. des Sciences; année 1783, page 524, et ſuiv.

(*d*) Mém. Acad. des Sciences; année 1777, page 595, et ſuiv.

its baſe, and it is to that baſe that we give the name oxygen. In the like manner we muſt diſtinguiſh the baſe of inflammable gas, which we denominate hydrogen. Therefore we muſt not ſay that vital air combines with the metals, to form the metallic calces; this method of expreſſing ourſelves would not be ſufficiently exact; but we ſay that when a metal is elevated to a certain degree of temperature, when its particles have been to a certain point ſeparated from one another by the heat, and that their attraction has been ſufficiently diminiſhed, it becomes capable of decompoſing vital air, of taking its baſe; that is to ſay, the oxygen from the caloric, and that then this latter becomes free. This explanation of what happens in calcination is not an hypotheſis, but the reſult of abſolute facts. More than twelve years ago the proofs have been laid before the academy by one of us, and they have been verified by the conſent of a numerous committee (*a*). It was then proved that in the calcination of metals, either under bell-glaſſes, or in cloſely ſtopped veſſels and with certain quantities of air, the air becomes decompoſed, and the metal becomes augmented in its weight by a quantity preciſely equal to that of the air abſorbed. It has been ſince diſcovered that on performing the cal-

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(*a*) *See* Opuſcules Chimiques de Mr. Lavoiſier, chap. V and VI, ſecond part.

cination of a metal in very pure vital air, this latter can be entirely abſorbed, and that when the calcination is performed in veſſels hermetically ſealed, it is limited by the quantity of air contained in the veſſels, and that the veſſels themſelves do not augment nor diminiſh in weight during the operation (*a*). In fine, it has been obſerved that the greater the rapidity of the calcination, the more ſudden is the diſengagement of the caloric, and that the calcination, for example, of iron becomes an abſolute combuſtion when performed in pure air.

In like manner there is a total abſorption of the vital air, or rather of the oxygen which forms its baſe, in the combuſtion of phoſphorus, and the weight of the phoſphoric acid obtained is found to be exactly equal to the weight of the phoſphorus and vital air employed in the combuſtion (*b*). The ſame agreement in weight is obſerved in the combuſtion of inflammable or hydrogen gas and vital air, in that of charcoal (*c*), &c. In all theſe operations, the caloric and light which maintained the oxygen in a ſtate of expanſion, are liberated, yet with this remarkable circumſtance, that there is more caloric diſengaged in the combuſtion of inflammable gas, than in that of phoſphorus, becauſe

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(*a*) Mém. Acad. 1774, page 351, et ſuiv.

(*b*) *See* Opuſcules Chim. de Mr. Lavoiſier, chap. IX, p. 327, and Mém. Acad. 1777, p. 65.

(*c*) Mém. Acad. de Sciences, année 1781, page 448, and 468.

cauſe the two aeriform fluids mutually give it forth, while on the contrary much leſs is liberated in the combuſtion of charcoal, becauſe the reſult of this combination being carbonic acid or fixed air, there is a neceſſity for caloric to maintain it in its aeriform ſtate.

Theſe relations are far from being ſuppoſitions, for every thing is proved to conviction with weight and meaſure. Therefore we certainly have no occaſion to have recourſe to a hypothetical principle which is a mere ſuppoſition, and which never can be proved; which we are obliged to regard one while as a weighty body, another while as exempt from any weight, and to which we are ſometimes obliged to attribute even a negative weight; which we imagine one time to eſcape, and another time not to eſcape through the veſſels, a ſubſtance which we muſt not define exactly, becauſe all its merit and convenience conſiſt in the very uncertainty of its definition.

Without doubt Stahl's obſervation is excellent, that the property of burning can tranſport itſelf from one body into another, according to certain laws and certain affinities; but at preſent as we know that the property of burning is nothing more than a property which ſome ſubſtances poſſeſs of decompoſing vital air, by the great affinity which they have with oxygen; the general obſervation of Stahl's can be reduced to this ſimple fact: that *a body ceaſes to be combuſtible as ſoon as its affinity for oxygen is ſatisfied, as ſoon as it becomes ſaturated therewith; but that it again becomes combuſtible, as ſoon as the oxygen has been taken from it by another body that has more affinity with this principle, the baſe of vital air.*

One point of the modern doctrine, which appears to be the moſt ſolidly eſtabliſhed, is the formation, the decompoſition, and the re-compoſition of water: and how is it poſſible to doubt it, when we ſee that on burning together 15 grains of inflammable gas and 85 of vital air, we obtain exactly 100 grains of water, and that by decompoſition, we can again obtain theſe two principles in the ſame proportions (*a*). Should we doubt a fact corroborated by ſuch ſimple, ſuch palpable experiments, there would be nothing certain in phyſics; we may as well doubt if vitriolated tartar is abſolutely a compoſition of vitriolic acid and fixed alkali; if ſal ammoniac is compoſed of marine acid and volatile alkali, &c. &c. For the proofs which we have of the compoſition of theſe ſalts are of the ſame kind, and not more exact than thoſe which prove the decompoſition of water.

Nothing ſhews more the inſufficiency of the ancient theory than the forced explanations which they are obliged to give of theſe experiments on water. The

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(*a*) See Mém. Acad. Sciences, annéc 1781, p. 269, & ſuiv. 498, & ſuiv.

The water, ſay they, which we obtain, was contained in the two airs, in the two elaſtic fluids which we burned (*a*). But in 100 grains of air there cannot be 100 grains of water, or it muſt be ſaid that inflammable gas is water, and that vital air is water, and that conſequently theſe two aeriform fluids are the ſame thing, which is contrary to reaſon, becauſe it is probable that two bodies which have very different properties are not one and the ſame thing.

There is alſo another experiment which ſubverts all this ſyſtem of explanation; the revivification of metallic calces in hydrogen or inflammable gas by the means of a burning glaſs. If under a bell-glaſs or jar filled with mercury and dipped in mercury be introduced a pint, that is to ſay two grains weight, of inflammable gas (*b*), and then be introduced a metallic calx, and that the focus of a burning glaſs be made to fall upon it, the inflammable gas becomes totally abſorbed, at the ſame time the metal revivifies, and a conſiderable quantity of water is depoſited both on the ſides of the bell or jar, and on the ſurface of the mercury. It has not been as yet determined exactly what quantity of water is obtained in this operation; but it is at leaſt proved that it far exceeds the weight of the inflammable gas employed; therefore

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(*a*) See of this book pages

(*b*) Doctor Prieſtley's experiments.

therefore it could not have been contained in this gas, for it would be abſurd to ſuppoſe that two grains of inflammable gas could contain eight or ten grains or even more, of water in diſſolution.

From the phenomena of the atmoſphere another argument has been deduced, but an argument by no means more concluſive (*a*): they have obſerved "that when in a ſummer's thunder "ſtorm, the heavens become obſcured by a maſs "of thickening clouds, dark and confuſed, a ſudden diſcharge of thunder inſtantaneouſly breaks "the combination, when in a ſecond this immenſe "cloud burſts, melts and covers the earth with a "deluge of water; this cannot be a generation. "Is it not more natural to think that this water, "firſt diſſolved and volatilized by the heats of "ſummer, and thereby put into a ſtate of expanſion in the atmoſphere, by the aid of the ſame "heat and of the different ſtates in which this "matter ſo active, ſo ſubtle, ſo light, and ſo inclined to combination can enter; finds itſelf "precipitated from theſe different combinations "by the great electrical diſcharge which is made "in the clouds, and which we perceive inſtantaneouſly to produce its effect?" From theſe reflections they infer that the water obtained by the combuſtion of inflammable gas and vital air, may in like manner be only water condenſed and precipitated

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(*a*) See page 188 of this book.

precipitated from the two gaſes in which they ſuppoſe it to have been held in diſſolution.

But we can eaſily ſubvert this concluſion and compariſon. In the experiments on the combuſtion of the two gaſes and the production of water, we obtain water weight for weight. But in the example which they cite it is very different; for in the moſt violent thunder-ſtorms there ſcarce ever falls an inch of water, and even if we ſhould ſuppoſe that more could be precipitated; if we ſhould ſuppoſe that the atmoſpherical air could deprive itſelf of all the water it contains, yet the quantity of water, according to the experiments of Mr. de Sauſſure, would only amount to one fiftieth part of the atmoſphere's weight. There would then remain as the reſult of this great experiment, forty-nine parts out of fifty, while after the combuſtion of the two elaſtic fluids there remains no reſiduum at all, at leaſt when they are pure, and the weight of the water is exactly equal to that of the two gaſes. We therefore may reaſonably think that the water diſengaged in a thunder-ſtorm, had been maintained in a ſtate of diſſolution in the air, and that ſome cauſe or other had operated its precipitation; but the ſame thing cannot be ſuppoſed in the ſecond caſe, becauſe a diſſolution cannot be operated without a diſſolver, and becauſe the diſſolved ſubſtance, which is water, is equal in weight to the totality of the two gaſes:

from which we ſhould be obliged to ſuppoſe that there are two diſſolvers of water in the inflammable gas and in the vital air, each of a different nature; and that they are both exempt from weight: a moſt groundleſs ſuppoſition, which does not at all agree with the other known facts, and which would be more difficult to admit than the compoſition of water itſelf.

Moreover it is not merely by the means of recompoſition, that we have been enabled to diſcover that water is a compound body, and to determine the nature of the principles which enter into its combination. For the component principles of water are again found by the analyſis, by the decompoſition of water; ſo that in this argument we have the very utmoſt of chymical demonſtration. We need only preſent to the water any ſubſtance that has a great affinity with the hydrogen, the baſe of inflammable air, or with the oxygen the baſe of vital air, to operate the ſeparation of the conſtitutive parts of the water; the water becomes decompoſed, and the one of its two principles, which does not engage in the new combination, unites with caloric and appears in the form of gas (*a*). The great phœnomena of the nutrition and growth of animals and vegetables, of the different kinds of putrefactions, &c. offer a multiplicity of examples of theſe decompoſitions. The

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(*a*) Mém. Acad. des Sciences, année 1781, page 468.

The Honourable Mr. Cavendiſh, Mr. Kirwan, and ſome others, do not entirely agree with us on the nature of the eſſential principles of water. And a variety of hypotheſis have been imagined on the nature and the compoſition of inflammable gas, and vital air. But as we have made it a rule in compoſing our nomenclature not to expreſs any thing but the moſt poſitive facts, we think it enough to ſay that water is a compoſition of the baſe of vital air and that of inflammable gas, of oxygen and hydrogen; and by confining ourſelves to theſe expreſſions we are ſure not to fall into error."

We now proceed to the theory of acidification, if at all the name of theory ſhould be given to a truth of fact and obſervation which, from its generality, may be looked upon as a conſtant law of nature. We have not as yet been able to decompoſe and to recompoſe all the acids; but at leaſt we are convinced that oxygen is a principle common to them all, and neceſſary to the formation of all thoſe whoſe compoſitions we have been able to analyze. Thus it is a fact, and proved by the moſt rigorous experiments, that ſulphur cannot convert itſelf into ſulphuric or vitriolic acid, unleſs once and half its weight of oxygen or the baſe of vital air be combined with it; that in like manner phoſphorus cannot become phoſphoric acid, nor charcoal carbonic acid or fixed air, un-

leſs

leſs when combined with two parts and half of oxygen, &c. Thus far the new doctrine of acidification is only the recital of facts; but when from theſe particular facts, a general concluſion is drawn that oxygen is a principle common to all the acids, analogy induces us to think ſo, and there begins the theory; but experiments multiplying every day continually afford us new proofs to convince us of it, and we do not think it one of the leaſt important parts of the modern doctrine (*a*).

It is objected to us that we do not explain ourſelves in the theory of acidification, how " oxygen, " the baſe of vital air, uniting with a ſimple ſubſtance, ſulphur, forms the vitriolic acid, while a " very ſmall portion of this ſame oxygen, united " to this ſame ſulphur, produces a gazeous ſubſtance prodigiouſly volatile, in a word, ſulphureous acid again?" (*b*) But do they explain themſelves better in the ancient theory how the ſame phlogiſton which, in ſulphur, renders the vitriolic acid concrete, ſolid, inodorous and inſipid, makes this ſame ſulphur extremely volatile, and gives it a ſuffocating ſmell in the ſulphureous acid? Beſides, in the formation of the ſulphureous and ſulphuric acids, as well as of all thoſe that are the reſult

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(*a*) See Opuſcules Phyſiques et Chimiques, ch. IX. Mém Acad, année 1776, p. 671, année 1777, p. 65, et 594, année 1778, p. 555.

(*b*) See page 186 of this book.

reſult of combuſtion, or to ſpeak more exactly, of combination with oxygen, we do not explain ourſelves, nor pretend to do ſo; we prove that theſe things abſolutely are ſo, and we prove them by experiments which have been publiſhed more than twelve years ago, and repeated by a great number of phyſicians, and which have never been contradicted. On the contrary, the partiſans of the old theory do not prove their aſſertions, but, to make uſe of their own words, *explain themſelves one way or other by the aid of phlogiſton (a)*; and then they add, (theſe are again their own very words) " the new theory, we ſhall not deny, has " notwithſtanding its advantages over the old. It " agrees better with the mutual action of the " principles of bodies; for example, this vital " principle, the aliment of life and flame, which " paſſes from the air into the acids, and from the " acids into a variety of combinations, from " which laſt it is extracted by art and made to " appear again in the form of vital air. And the " new theory owes theſe advantages to preciſion, " and to the exact calculation to which the per- " fection of modern apparatus has reduced the " method of analyzing."

After ſo formal an avowal, ſo proper to flatter our ſelf-pride, we ſhould be tempted to ſay not even one word more: yet we may permit ourſelves to obſerve, that the doctrine of phlogiſton, which they qualify with the title of ancient theory, is more modern than what they are pleaſed to call the new theory. It is no longer the theory of Becher and of Stahl which they teach at preſent, for the modern diſcoveries have obliged them to modify, to alter it, in ſuch a manner that there remains almoſt nothing of that antique edifice; a few ſhort reflections will ſufficiently make this apparent.

(a) See page 184 of this book.

The principle introduced into chymiſtry under the name of inflammable principle, of *phlogiſton, phlogiſtic* or *phlogiſtique*, was originally a fixed and heavy principle, an abſolute earth. Mr. Macquer in his laſt works has totally abandoned this ſyſtem; according to him phlogiſton or phlogiſtique is a ſubtle principle, in a word, abſolute light. Thus Mr. Macquer has retained the name without retaining the thing itſelf, and it may be perceived that he was one of the firſt that abandoned the theory of Stahl.

Mr. Beaumé has adopted another opinion, or rather an hypotheſis, in ſome meaſure middling, between thoſe of Stahl and Macquer. He regards phlogiſton as a combination of fire with an earthy ſubſtance. This combination, according to him, exiſts in an infinity of proportions, from which reſult different kinds of phlogiſton from the degree of pure fire, which is ſenſibly exempt from weight, to that of the moſt earthy phlogiſton which at the ſame time is the moſt heavy. This doctrine likewiſe is very different from that of Beecher and Stahl; but it may be conceived at the ſame time, how much a principle, which in this manner faſhions itſelf to every thing, muſt be commodious to explain every thing; it is a very Proteus, that appears under all manner of forms, and eſcapes from the line of argument as well as from our experiments, at the very inſtant that we think we have it.

Mr. Kirwan and ſome others have thought that they perceived in the inflammable gas all the properties which before their time had been attributed to phlogiſton. They have, like Mr. Macquer, retained the name without retaining the thing itſelf; but as inflammable gas is a *real* ſubſtance, whoſe properties are very well known, which has a known weight, and which enters into a great number of combinations, this hypotheſis will not afford the ſame reſources to its defenders; and it will not be difficult for us to prove that there does not exiſt any inflammable gas, either in ſulphur, in phoſphorus, in pure charcoal, or in metals; that inflammable gas is only found in ſuch ſubſtances accidentally, and on account of the affinity which combuſtible ſubſtances have for one another, but that it is not eſſential to their exiſtence, and that it may be ſeparated from them without affecting their conſtitutive properties.

It is evident that all theſe theories have nothing in common among them but the word phlogiſton, which they all have retained, and that it has become in ſome reſpect a word of jeſt; that the phlogiſton of the French is not that of the Germans, and much leſs that of the Engliſh; and that theſe different theories, far from being *ancient*, are on the contrary even more modern than the doctrine which ſome have characterized with the appellation of the *new theory*.

We do not by any means infer from all this, that the Academy ought to adopt or reject the doctrine of phlogiſton, or rather that which has been ſubſtituted for it; we do not even think that the Academy ought to adopt our reflections. If the Academy was to be reſponſible for all the things contained in the reports of its committees, it would be concluded that the Academy is ever wandering from one opinion to another, ſucceſſively Carteſian and Newtonian; perſuaded with Lémerry that pure fire is a weighty ſubſtance, and that it augments the weight of metallic calces; perſuaded on the contrary with the Stahlians, that metals in calcination loſe their phlogiſton: it would be ſeen to adopt with Abbé Nollet, the two electrical currents, and with Dr. Franklin and Mr. le Roy, poſitive and negative electricity; and even more than all this, it would be concluded that ſince 1773, it had adopted the doctrine which we defend, becauſe Meſſrs. Macquer, le Roy, de Montigny and de Trudaine wiſhed to give a favorable account of the work produced by one of us, in which that one laid the firſt foundations of this doctrine. In fine, it would be found that the Academy ſpeaks ſometimes one language, ſometimes another; that in one aſſembly it believes the exiſtence of phlogiſton, and in another that it does not believe it; that it adopts the new nomenclature and that it rejects it, becauſe for ſeveral years paſt reports have been frequently made to it of each of theſe doctrines, in both the nomenclatures, and that theſe reports have been received with approbation.

However agreeable, even honorable it would have been for us to have ſeen our doctrine adopted by the Academy, we cannot flatter ourſelves by ſaying it has obtained the ſuffrages of the aſſembly, and for our part we had not even the ambition to demand them. We know that the Academy is an impartial and impaſſible judge; that it applauds the efforts which are made under its inſpection to do away errors and prejudices, and to extend the dominion of truth; but that it is ſlow to pronounce. It is on account of this confidence that we have in the wiſdom of its principles, that we hope it will continue to look kindly on a new doctrine nouriſhed and formed in its boſom, which already has coſt near twenty years labor, which the force of reaſon and facts has obliged the moſt celebrated chymiſts to adopt, and in the favor of which a much greater number at preſent appear ready to decide.

We therefore cannot diſapprove of Meſſrs. Haſſenfratz and Adet's having adapted their new chymical characters to the new nomenclature; we ſhall not diſcuſs at preſent the utility of characters and ſigns in chymiſtry, but we think that theſe propoſed by Meſſrs. Haſſenfratz and Adet are far preferable to the ancient; that they have the advantage of painting to the ſight, not words, but facts, and giving juſt ideas of the combinations which they repreſent. This method ſeems to poſſeſs alſo another advantage; it determines before hand the characters of ſuch ſubſtances as may be diſcovered in future, ſo that there can be nothing arbitrary in the formation of their characters, and a complete table of theſe characters repreſents at the ſame time all that has been done in the ſcience by former chymiſts, and all that yet remains to be diſcovered.

In fine, we are of opinion that the new characters preſented by Meſſrs. Haſſenfratz and Adet, merit the approbation of the Academy, and to be publiſhed under its ſanction and privilege.

In the Louvre, the 27th of June 1787. *Signed*, LAVOISIER, BERTHOLET, and de FOURCROY.

I certify this extract to be conformable to the original and to the judgment of the Academy. 27 June, 1787.

Signed, the Marquis of CONDORCET.

FINIS.

T A B L E.

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End of the Table.

Plate 1st

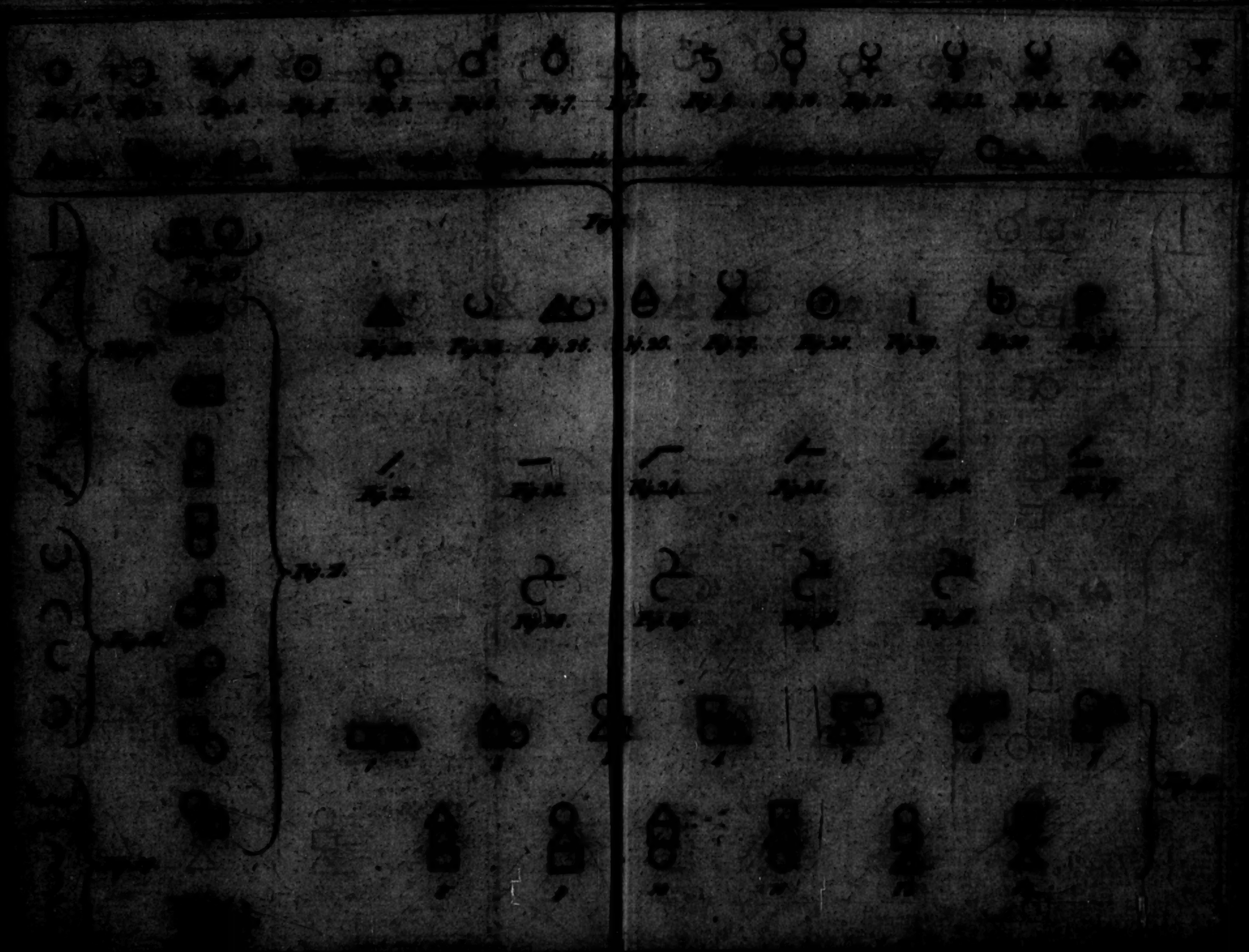


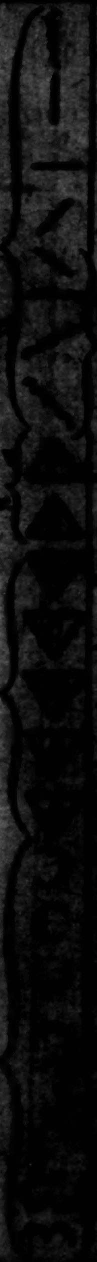
TABLE OF THE CHARACTERS TO BE MADE

Simple Substances [illegible] exist in the [illegible] state in the ordinary temperature of the atmosphere, and which [illegible] with the [illegible] of [illegible] substances [illegible] in their Characters.

[illegible] which are as yet considered as simple substances.

Simple Earths.

[illegible] Simple [illegible] [illegible] substances.



Light.

Caloric, Matter of Heat.

Oxygen, Base of Vital Air.

Azot, Base of [illegible] Air or Mofette.

Characters to [illegible] [illegible] substances as [illegible] be discovered.

Potash, Caustic fixed Alkali.

Soda, Caustic Mineral Alkali.

Barytes, Ponderous earth.

Lime, Calx.

Magnesia.

Alumine, Argillaceous earth.

Silex, Quartz.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

METALLIC SUBSTANCES.

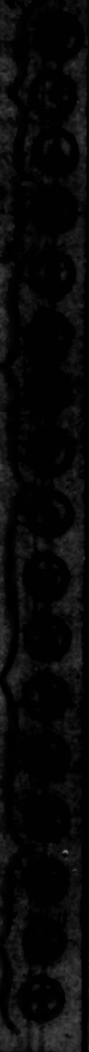
Metals malleable by [illegible] [illegible].

A metal in the liquid state in the ordinary temperature of the atmosphere.

Malleable Metals.

Metals not malleable.

[illegible] Metals.



Platina.

Gold. Aurum.

Silver. Argentum.

Mercury. Hydrargyr

Tin. Stannum.

Copper. Cuprum.

Lead. Plumbum.

Iron. Ferrum.

[illegible]

[illegible]

[illegible]

Bismuth. Bismuthu

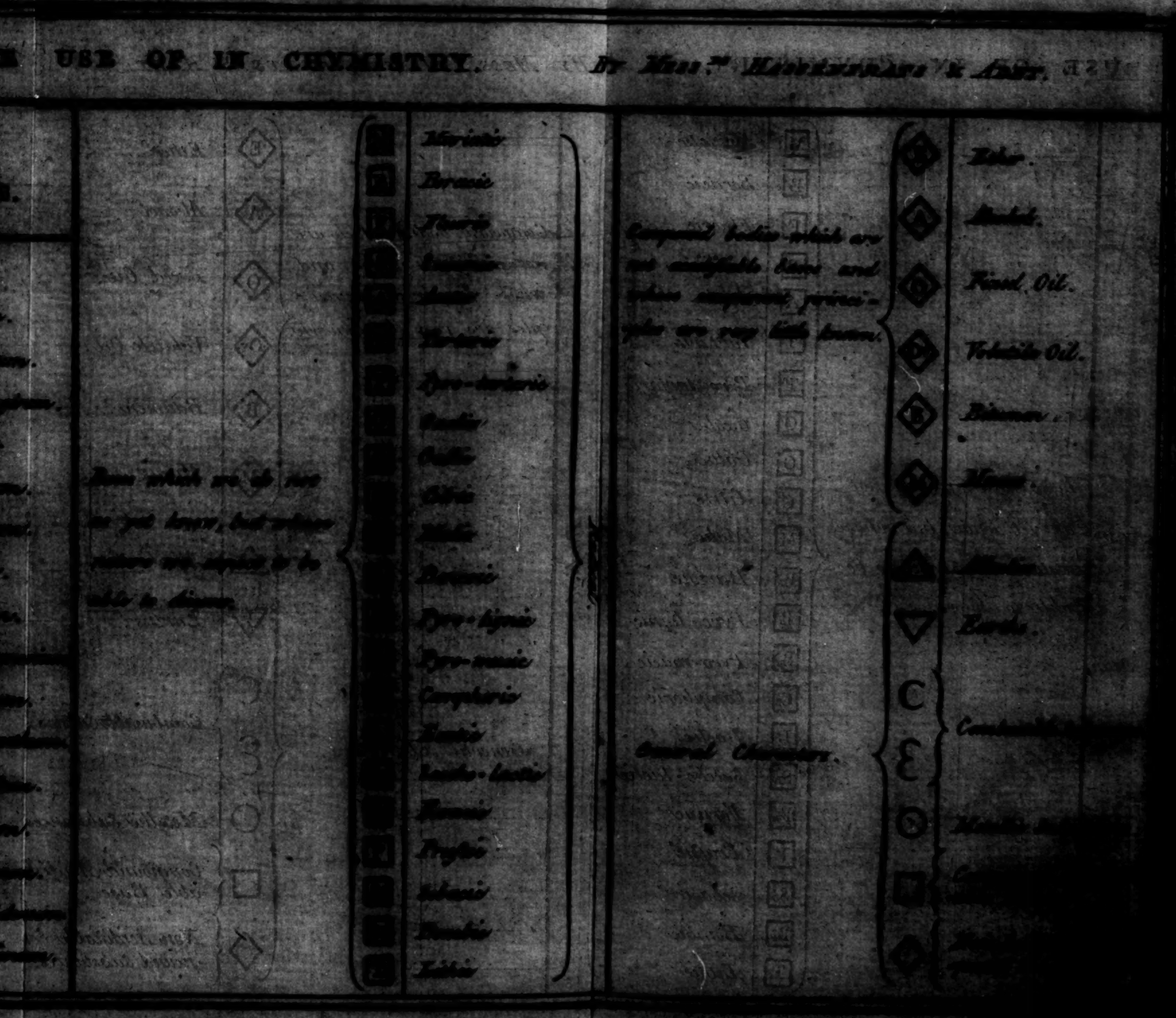
[illegible]

Cobalt. Cobaltum.

Arsenic. Arsenicum

Molybdena. Molybdenu

Tungstein. Tungsten



E USE OF IT IN CHEMISTRY. By Mess.rs Hassenfratz & Adet.

Bases which are as yet not yet known, but whose nature are supposed to be able to dispose.

- Muriatic
- Boracic
- Fluoric
- Succinic
- Acetic
- Tartaric
- Pyro-tartaric
- Oxalic
- Gallic
- Citric
- Malic
- Benzoic
- Pyro-lignic
- Pyro-mucic
- Camphoric
- Lactic
- Saccho-lactic
- Formic
- Prussic
- Sebacic
- Bombic
- Lithic

Compound bodies which are not acidifiable bases and whose component principles are very little known.

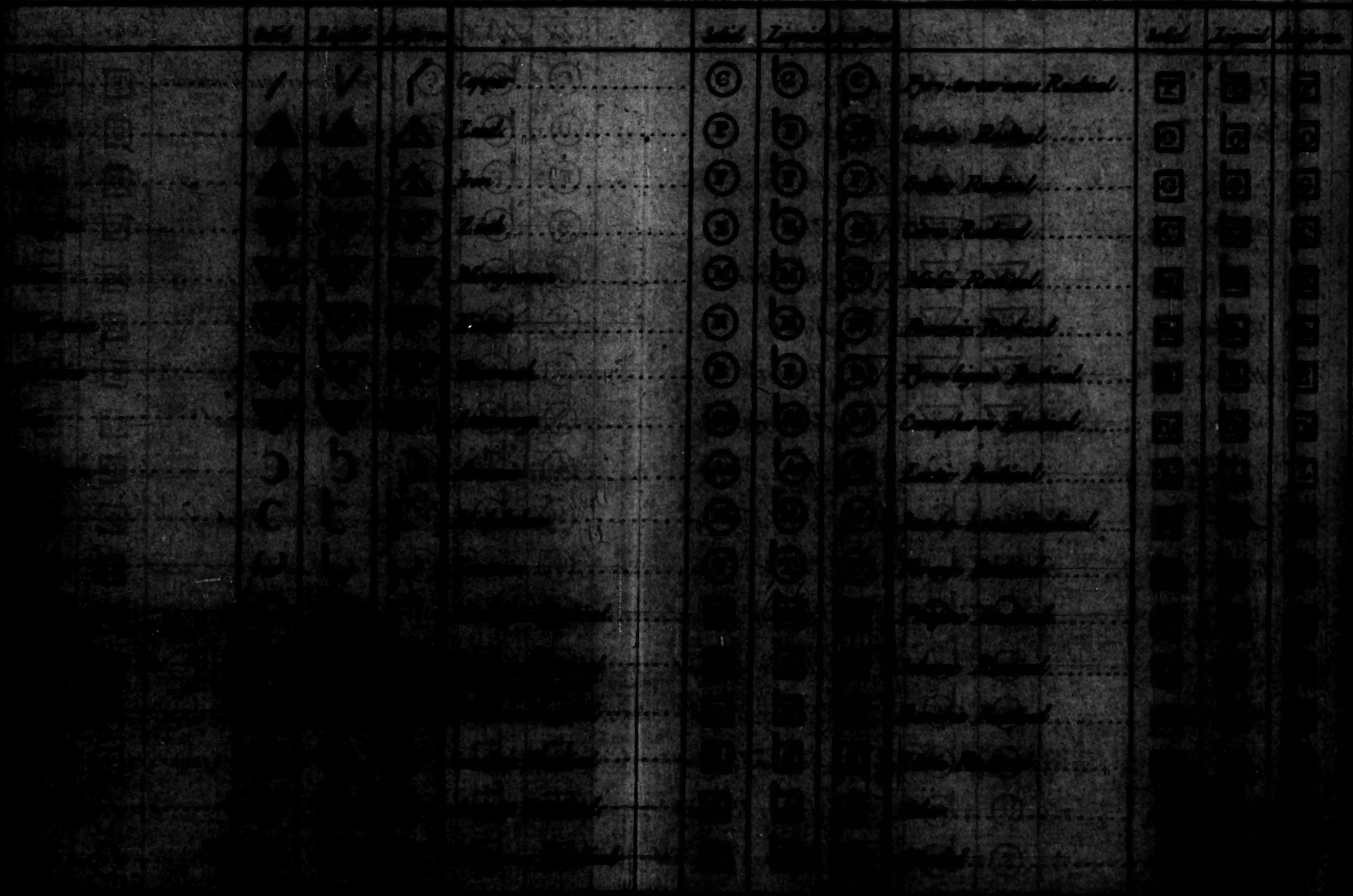
- Ether.
- Alcohol.
- Fixed Oil.
- Volatile Oil.
- Bitumen.
- Mucus.

General Characters.

- Alkalies.
- Earths.
- Combustibles
- Metallic

II. TABLE. COMBINATIONS OF CALORIC

with different Simple Substances, producing the Solid, Liquid, and Aeriform States.


Solid
Liquid
Aeriform
Copper
Lead
Iron
Zinc
Manganese
Solid
Liquid
Aeriform
Pyro-tartarous Radical
Oxalic Radical
Gallic Radical
Citric Radical
Malic Radical
Benzoic Radical
Pyro-ligneous Radical
Camphoric Radical
Lactic Radical
Solid
Liquid
Aeriform

[illegible] TABLE. THE [illegible] COMBINATIONS OF OXYGEN & CALORIC WITH DIFFERENT SUBSTANCES.

[illegible] Gas	Oxygenated Muriatic Acid Gas	[illegible] Acid	Oxyd of Mercury
[illegible] Acid Gas	[illegible] Oxygenated Muriatic Acid	Oxygenated [illegible] Acid	Oxyd of Silver
[illegible] Acid	[illegible] Oxygenated Muriatic Acid	[illegible] Acid Gas	Oxyd of Gold
[illegible] Acid	[illegible] Boracic Acid	Oxygenated Sebacic Acid	Oxyd of Platina
	[illegible] Acid Gas	Oxygenated [illegible] Acid	
[illegible]	[illegible] Acid	Oxyd of Tungsten	
[illegible]	[illegible] Acid	Tungstic Acid	
[illegible]	[illegible] Acid	Oxyd of Molybdena	
[illegible] of Water	[illegible] Acid	Molybdic Acid	
[illegible]	[illegible] Acid	Oxyd of Arsenic	
[illegible]	[illegible]	Arsenic Acid	
[illegible]	[illegible] Acid	Oxyd of Cobalt	
[illegible]	[illegible]	Oxyd of Antimony	
[illegible]	[illegible]	Oxyd of Bismuth	
[illegible]	[illegible]	Oxyd of Nickel	
[illegible]	[illegible]	Oxyd of Manganese	
[illegible]	[illegible]	Oxyd of Zinc	
[illegible]	[illegible]	Oxyd of [illegible]	
[illegible]	[illegible]	Oxyd of [illegible]	
[illegible]	[illegible]	Oxyd of [illegible]	
[illegible]	[illegible] Acid	Oxyd of [illegible]	

BINARY COMBINATIONS of TWO SUBSTANCES.

[illegible]

[illegible] Gas	[illegible] of Copper	[illegible] of Tin & Copper
[illegible]	[illegible] of Lead	of Tin & Lead
[illegible]	[illegible] of Iron	of [illegible]
[illegible]	[illegible] of Zinc	of [illegible]
[illegible]	[illegible] of Nickel	[illegible] of Iron
[illegible] Hydrogen Gas	[illegible] of Bismuth	
[illegible] Hydrogen Gas	[illegible] of Antimony	
[illegible] Hydrogen Gas	[illegible] of Cobalt	
[illegible]	[illegible] of Arsenic	
[illegible]	[illegible]	
[illegible] of Iron	[illegible]	
[illegible]	[illegible]	

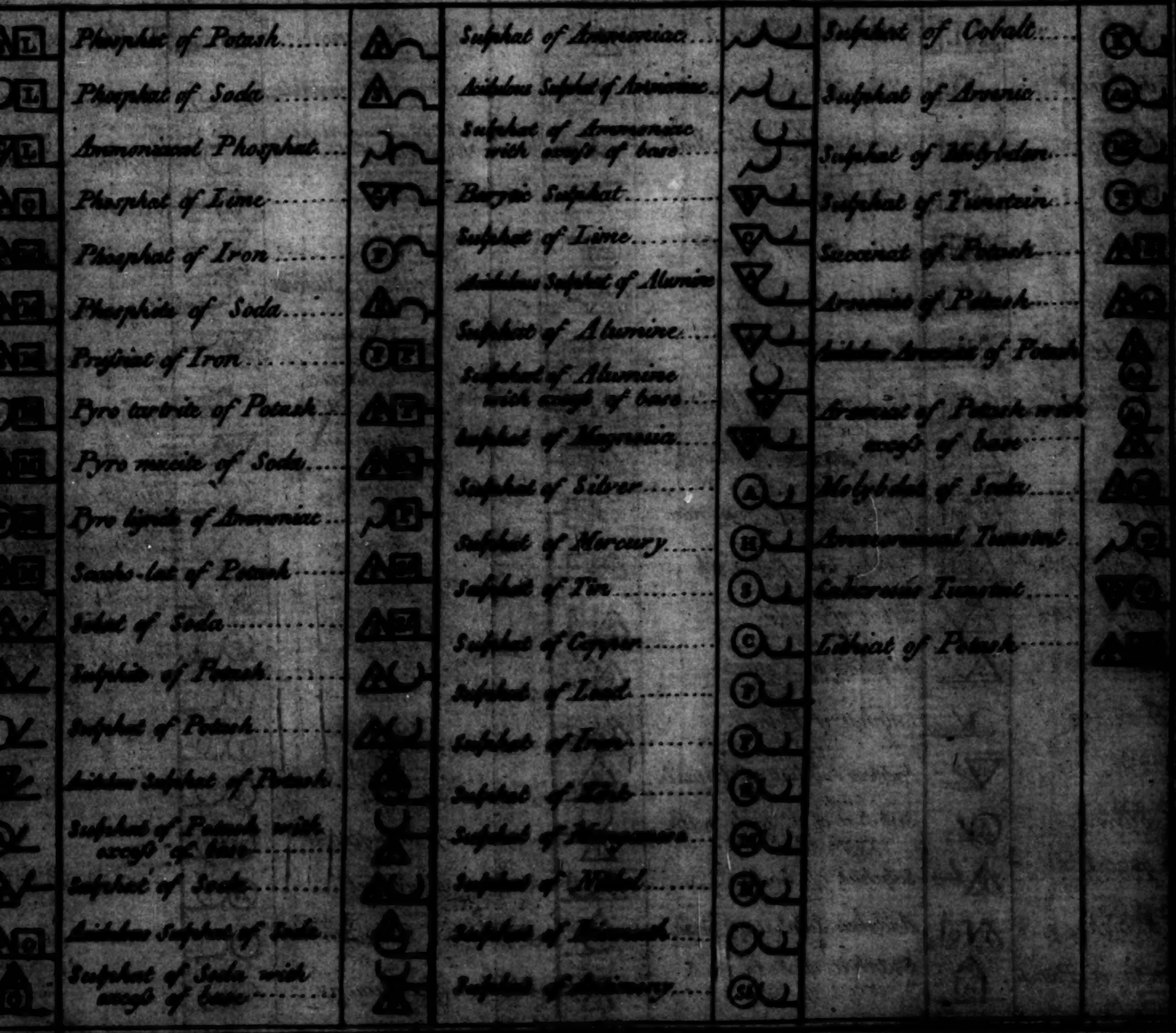
TABLE. V^TH. NEUTRAL SALTS COMP

Caloric is not supplied, because they are all supposed to be in the solid

Calcareous Acetat	▽ A	Benzoat of Potash	△ B	Lactat of Soda	△ L
Acetat of Alumine	▽ A	Ammoniacal Benzoat	B	Ammoniacal Lactat	L
Acetat of Magnesia	▽ A	Calcareous Benzoat	▽ B	Lactat of Lime	▽ L
Acetat of Potash	△ A	Borat of Soda	△ B	Gallat of Potash	△ G
Acetat of Soda	△ A	Ammoniacal Borat	B	Malat of Potash	△ M
Acetat of Copper	⊙ A	Calcareous Borat	▽ B	Muriat of Potash	△ M
Acetat of Iron	⊙ A	Camphorat of Potash	△ C	Muriat of Soda	△ M
Ammoniacal Acetite	A	Ammoniacal Camphorat	C	Ammoniacal Muriat	M
Acetite of Potash	△ A	Calcareous Camphorat	▽ C	Barytic Muriat	△ M
Calcareous Acetite	▽ A	Citrat of Soda	△ C	Muriat of Iron	⊙ M
Arseniat of Potash	△	Ammoniacal Citrat	C	Oxygenated Muriat of Soda	△ M
Ammoniacal Arseniat		Calcareous Citrat	▽ C	Nitrat of Potash, or Nitre	△
Calcareous Arseniat	▽	Fluat of Potash	△ F	Nitrat of Soda	△
Carbonat of Potash	△ C	Fluat of Ammoniac	F	Ammoniacal Nitrat	
Carbonat of Soda	△ C	Fluat of Lime	▽ F	Barytic Nitrat	▽
Ammoniacal Carbonat	C	Formiat of Soda	△ F	Nitrat of Silver	⊙
Calcareous Carbonat	▽ C	Ammoniacal Formiat	F	Nitrite of Potash	△
Barytic Carbonat	▽ C	Calcareous Formiat	▽ F	Oxalat of Potash	△ O
Magnesian Carbonat	▽ C			Acidulous Oxalat of Potash	O
Carbonat of Iron	⊙ C				

MPOSED OF THREE SUBSTANCES.

lid state. The Ammoniacal Salts are composed of four Substances.



Phosphat of Potash
Phosphat of Soda
Ammoniacal Phosphat
Phosphat of Lime
Phosphat of Iron
Phosphite of Soda
Prussiat of Iron
Pyro tartrite of Potash
Pyro mucite of Soda
Pyro lignite of Ammoniac
Saccho-lat of Potash
Sebat of Soda
Sulphite of Potash
Sulphat of Potash
Acidulous Sulphat of Potash
Sulphat of Potash with excess of base
Sulphat of Soda
Acidulous Sulphat of Soda
Sulphat of Soda with excess of base

Sulphat of Ammoniac
Acidulous Sulphat of Ammoniac
Sulphat of Ammoniac with excess of base
Barytic Sulphat
Sulphat of Lime
Acidulous Sulphat of Alumine
Sulphat of Alumine
Sulphat of Alumine with excess of base
Sulphat of Magnesia
Sulphat of Silver
Sulphat of Mercury
Sulphat of Tin
Sulphat of Copper
Sulphat of Lead
Sulphat of Iron
Sulphat of Zinc
Sulphat of Manganese
Sulphat of Nickel
Sulphat of Bismuth
Sulphat of Antimony

Sulphat of Cobalt
Sulphat of Arsenic
Sulphat of Molybden
Sulphat of Tungstein
Succinat of Potash
Arseniat of Potash
Acidulous Arseniat of Potash
Arseniat of Potash with excess of base
Molybdat of Soda
Ammoniacal Tungstat
Calcareous Tungstat
Lithiat of Potash